DOE M 474.1-2A

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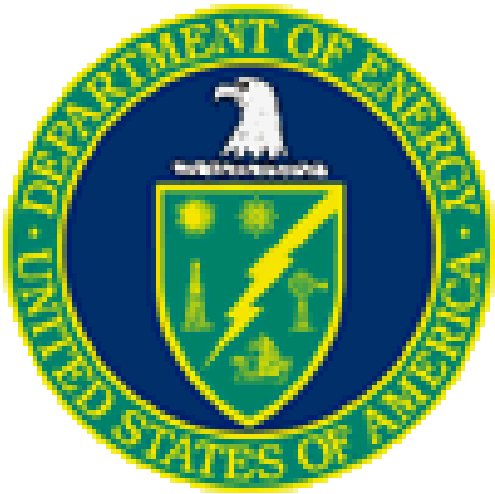
MANUAL FOR NUCLEAR MATERIALS MANAGEMENT AND SAFEGUARDS SYSTEM REPORTING AND DATA SUBMISSION



U.S. Department of Energy
Office of Security

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Office of Security Policy

NUCLEAR MATERIALS MANAGEMENT AND SAFEGUARDS SYSTEM REPORTING AND DATA SUBMISSION MANUAL

1. OBJECTIVE. To provide detailed instructions for documenting and reporting data submissions for nuclear materials transactions, inventories, and material balances to the Nuclear Materials Management and Safeguards System (NMMSS). Implementing procedures contained in this Manual are required by DOE O 474.1A, *Control and Accountability of Nuclear Materials*, dated 11-20-00, and DOE M 474.1-1B, *Manual for Control and Accountability of Nuclear Materials,* dated 6-13-03.

2. CANCELLATION. DOE M 474.1-2, *Nuclear Materials Management and Safeguards System Reporting and Data Submission*, dated 2-10-98. Cancellation of the specified Manual does not modify or otherwise affect any contractual obligation to comply with Department of Energy (DOE)/National Nuclear Security Administration (NNSA) requirements. If a canceled Manual or chapter is incorporated by reference in a contract, it remains in effect until the contract is modified to delete the reference to the requirements in the canceled Manual or chapter.

3. APPLICABILITY.

   a. DOE Elements. This Manual applies to all accountable nuclear materials at DOE/NNSA facilities as indicated on Attachment 1.

   b. Site/Facility Management Contracts.

      (1) The Contractor Requirements Document (CRD), Attachment 2, sets forth requirements of this Manual that will apply to site/facility management contracts that include the CRD.

      (2) The CRD must be included in the site/facility management contracts that involve nuclear materials and contain DOE Acquisition Regulation (DEAR) clause 952.204-2, Security Requirements.

      (3) Lead Program Secretarial Officers must notify contracting officers of affected site/facility management contracts to incorporate this directive into those contracts.

      (4) Contracting officers once notified are responsible for incorporating this directive into the affected contracts.

      (5) As stated in the laws, regulations, and DOE directives clause of a site/facility management contract, regardless of the performer of the work, site/facility contractors with the CRD incorporated into their contracts are responsible for compliance with the CRD. Affected

site/facility management contractors are responsible for flowing down the requirements of the CRD to subcontracts at any tier to the extent necessary to ensure compliance with the requirements. In doing so, contractors will not unnecessarily or imprudently flow down requirements to subcontracts. That is, contractors will ensure that they and their subcontractors comply with the requirements of this CRD and only incur costs that would be incurred by a prudent person in the conduct of competitive business.

c. This Manual does not automatically apply to other than site/facility management contracts. Application of any of the requirements of this Manual to other than site/facility management contracts will be communicated as follows.

(1) Heads of field elements and Headquarters elements review procurement requests for new non-site/facility management contracts that involve nuclear materials and contain DEAR clause 952.204-2, and, if appropriate, ensure that the requirements of the CRD are included in the contract.

(2) Contracting officers assist originators of procurement requests who want to incorporate the requirements of the CRD of this directive in new non-site/facility management contracts, as appropriate.

d. The CRD also applies to the Nuclear Regulatory Commission (NRC) and NRC Agreement State licensees (see Chapter XVII, Definitions) that possess DOE/NNSA-owned material.

e. Exclusions. This Manual does not apply to DOE/NNSA-owned nuclear materials at Department of Defense (DoD) facilities and foreign facilities.

4. EFFECTIVE DATE OF IMPLEMENTATION. This revision becomes effective October 1, 2003. Until that time, DOE M 474.1-2, dated 2-10-98, remains in effect.

5. DOCUMENTATION AND REPORTING.

a. DOE/NNSA elements and contractors must document all nuclear materials transactions, material balances, and inventories in accordance with the instructions provided in this Manual and will transmit this information to the national database, NMMSS.

b. The national database will be used to accumulate and distribute information concerning nuclear materials transactions, material balances, and inventories.

c. Submissions must be made in a timely manner in order that the objective of the system may be met, which is to achieve reporting of accurate and complete data as soon as possible after the events described by the data occur.

d. The national database will provide nuclear materials information relating to safeguards, materials management and production, inventory quantities and valuations, and other information requested or required by DOE/NNSA and NRC.

e. The national database will serve as the centralized reporting facility to provide the information required under the provisions of the United States/International Atomic Energy Agency (IAEA) Safeguards Agreement.

f. All NMMSS data submissions that are mailed will be sent to the NMMSS operator at—

NAC International
NMMSS Project
P.O. Box 922088
Norcross, GA 30010
Attn: Document Control

g. The correct manuals to use when reporting nuclear material to NMMSS are as follows.

(1) This Manual will be used to report all United States (U.S.) Government owned (owner code G) nuclear materials (See Tables XV-1 and XV-3),and non-Government owned (owner code J) nuclear materials located on a DOE/NNSA site.

(2) NRC NUREG-006 and NRC NUREG-007 are used to report non-Government owned (owner code J) nuclear materials located at a licensee.

(3) Facilities, projects, and programs under the cognizance of the Office of Civilian Radioactive Waste Management subject to NRC regulation must use the rules, standards, and criteria specified by the NRC or the NRC Agreement State in lieu of this Manual.

6. FORMS.

a. Forms identified and described in this Manual (see Chapter XVIII) or the electronic equivalent will be used to document and report nuclear materials transactions, material balances, and inventories in accordance with the instructions provided in this Manual.

b. A computer-generated form must contain all information necessary for proper documentation and reporting of nuclear materials transactions, material balances and inventories. Examples of paper forms are provided in Chapter XVIII. The forms in Chapter XVIII are provided only for informational purposes and are not

to be used to supply data to the NMMSS. Forms are available from the NMMSS operator and online at the DOE Directives website (directives.doe.gov).

7. REPORTING IDENTIFICATION SYMBOL (RIS).

a. Data entered into the NMMSS is keyed to sets of RISs. The establishment, maintenance, and deactivation of an individual RIS will be based on criteria detailed in Chapter I of this Manual.

b. Unless a shipment is covered by one of the exclusions noted in this Manual (e.g., shipments to DoD), in other DOE/NNSA Orders or Manuals, or other agreements, reportable quantities of accountable nuclear material will be shipped only to facilities with a valid RIS.

c. Following annual review of RIS information, cognizant DOE/NNSA field elements will provide to the NMMSS operator a locally generated memorandum verifying the information listed for the RISs under their purview, or noting any changes. The memorandum may be submitted via facsimile, e-mail, or online as appropriate. This reporting requirement commences October 31, 2003, and continues each year thereafter.

d. A yearly updated copy of the RIS directory is available from the NMMSS operator.

8. CORRECTION DATA. Corrections of data previously submitted and found to be in error must be submitted to NMMSS within 1 working day following notification of the error.

9. PERIODIC RECONCILIATION OF FACILITY DATA WITH NMMSS. Reconciliation of inventory data is required of facilities following March and September submissions. The process to be followed is set forth in Chapter XIII, Inventory Reporting.

10. DEFINITIONS. Definitions of terms used in this Manual are provided in the text and in Chapter XVII. Definitions of security terms may be found in the *Safeguards and Security Glossary of Terms*, online at directives.doe.gov/libraries/othersources.html.

11. CONFIDENTIALITY OF DATA.

a. Information requested must be classified as required by DOE/NNSA classification guidance. Classified information is exempt from public disclosure under the Freedom of Information Act (FOIA). (See 5 U.S.C. 522.)

b. Unclassified information collected in NMMSS will be subject to public disclosure. Exemption from disclosure can be requested. (See exemption categories in DOE G 471.3-1, *Guide to Identifying Official Use Only Information,*

dated 4-9-03.) A respondent may specifically request that data be withheld under the applicable FOIA exemption; however, the final determination with regard to disclosure or nondisclosure of information will be made by DOE/NNSA.

c. DOE/NNSA regulations for handling proprietary information of a private business, foreign government, or an international organization [10 CFR 1004.11(b)] allow a respondent to advise DOE/NNSA that data submitted on the forms should not be made available to the public. A new written justification need not be submitted each time data is submitted if the respondent's views with regard to the confidentiality of the information requested have not changed.

12. CLASSIFICATION OF DATA. The classification of data processed and disseminated by NMMSS is based on classification guidance furnished by the facility providing the data.

13. CONTACT. Comments and inquiries may be directed to the Office of Plutonium, Uranium and Special Materials Inventory, or the NMMSS operator (www.nmmss.com) at the following address.

NAC International
NMMSS Project
P.O. Box 922088
Norcross, GA 30010
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14. NMMSS PROGRAM MANAGEMENT AND QUALITY CONTROL. Two sources for information regarding quality assurance of the NMMSS database and program are the DOE Chief Information Office (CIO) and the DOE Management Control Program. (See DOE O 413.1A, *Management Control Program,* dated 4-18-02.) In the CIO's Office, the DOE Information Architecture program helps ensure compliance with OMB Circular A-130, *Management of Federal Information Resources* (2003) and the Clinger-Cohen Act of 1996 by promoting standard architectural practices, providing a framework for corporate systems modernization, and establishing an information architecture vision aligned with the Department's strategic goals.

15. SPECIFICATIONS FOR SOFTWARE AND HARDWARE SYSTEMS. Software and hardware systems used to implement NMMSS must follow guidelines promulgated by the DOE CIO's office in accordance with OMB Circular A-130 and the Clinger-Cohen Act of 1996. One of the goals of these standards is to ensure compatibility of systems and databases and thereby decrease the costs associated with non-standard or incompatible systems.

16. TRANSPORTATION. Transportation and in-transit reporting of nuclear material is not covered in this Manual. For requirements on transportation of material, see the following directives.

a. DOE O 460.2, *Departmental Materials Transportation and Packaging Management*, dated 10-26-95;

b. DOE M 460.2-1, *Radioactive Material Transportation Practices Manual*, dated 9-23-02; and

c. DOE G 460.2-1, *Implementation Guide for DOE O 460.2,Departmental Materials Transportation and Packaging Management*, dated 11-15-96.

17. ANOMALIES AND OCCURRENCE REPORTING. For the NMMSS system, the primary source used to determine what constitutes an anomalous condition is provided in DOE M 474.1-1B. Additional sources of guidance are DOE N 471.3, *Reporting Incidents of Security Concern*, dated 4-13-01, and DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information*, dated 7-21-97.

18. AUTHORIZING LEGISLATION. The collection of nuclear material transaction, inventory, and material balance data on the forms described in succeeding chapters is authorized by the following.

a. Public Law (P.L.) 83-703, Atomic Energy Act of 1954, as amended.

b. P.L. 93-438, Energy Reorganization Act of 1974, as amended.

c. P.L. 95-91, Department of Energy Organization Act of 1977, as amended.

d. Agreement between the United States of America and the International Atomic Energy Agency for the Application of Safeguards in the United States of America (1977) and Additional Protocol (1998), also referred to as the U.S./IAEA Safeguards Agreement.

e. International Atomic Energy Agency Information Circular 207 (INFCIRC/207), "Notification to the Agency [IAEA] of Exports and Imports of Nuclear Material," (7-26-74), and amendment letter dated 9-15-82, requesting that the U.S. report exports and imports of quantities of nuclear materials, including those with less than one effective kilogram but above minimal levels as defined.

19. REFERENCES.

a. DOE Acquisition Regulation (DEAR) (48 CFR 970.5204-78), Laws, Regulations, and DOE Directives (2000), which provides the authority of the DOE/NNSA contracting officer to mandate that contractors comply with the requirements of revised DOE directives. (Online at tis.eh.doe.gov/bps/contracts/fr62797.htm#78)

b. DOE G 471.3-1, *Guide to Identifying Official Use Only Information,* dated 4-9-03, which lists FOIA exemption categories.

c. DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information,* dated 7-21-97, which addresses the DOE policy of ensuring that the Office of the Secretary and both DOE/NNSA and DOE/NNSA contractor line management are kept fully informed on a timely basis of events that could adversely affect national security or the safeguards and security interests of DOE/NNSA, the health and safety of the public or the workers, the environment, the intended purposes of DOE/NNSA facilities, or the credibility of the Department.

d. DOE O 413.1A, *Management Control Program,* dated 4-18-02, which establishes the management control programs for DOE/NNSA elements. The program requires evaluation and reporting on the status of the management controls in the Department's programs and administrative functions and reporting on corrections of problems identified.

e. DOE O 460.1B, *Packaging and Transportation Safety*, dated 4-4-03, which establishes safety requirements for proper packaging and transportation of DOE/NNSA offsite shipment, onsite transfers of hazardous materials, and modal transport.

f. DOE O 460.2, *Departmental Materials Transportation and Packaging Management,* dated 10-26-95, which establishes requirements and responsibilities for managing DOE/NNSA materials transportation and packaging.

g. DOE G 460.2-1, *Implementation Guide for DOE O 460.2,Departmental Materials Transportation and Packaging Management*, dated 11-15-96.

h. DOE M 460.2-1, *Radioactive Material Transportation Practices Manual,* dated 9-23-02, which establishes a set of standard transportation practices for DOE programs to use in planning and executing offsite shipments of radioactive materials and radioactive waste.

i. DOE O 461.1, *Packaging and Transfer or Transportation of Materials of National Security Interest,* dated 9-29-00, which establishes requirements and responsibilities for Transportation Safeguards System (TSS) packaging, transport, and onsite transfer of nuclear explosives, nuclear components, Naval nuclear fuel elements, Category I and Category II special nuclear materials, special assemblies, and other materials of national security interest.

j. DOE M 461.1-1, *Packaging and Transfer of Materials of National Security Interest Manual,* dated 9-29-00, which establishes requirements for operational safety controls for onsite operations.

k. DOE N 471.3, *Reporting Incidents of Security Concern,* dated 4-13-01, which is designed to enhance the DOE Incident of Security Concern Reporting Program

through more consistent reporting, better information tracking, and incident coordination. The Notice defines what constitutes an incident of security concern and what an individual must do if he/she believes an incident has occurred. The incidents are ranked via an Impact Measurement Index (IMI) number based on the potential consequences of the incident.

l. DOE O 470.1, *Safeguards and Security Program*, dated 9-28-95, which sets forth general safeguards and security program requirements.

m. DOE O 471.2A, *Information Security Program*, dated 3-27-97, which contains requirements for the protection and control of classified documents and information.

n. DOE M 471.2-1C, *Manual for Classified Matter Protection and Control,* dated 4-17-01, which contains requirements relative to the protection and control of classified documents and information.

o. DOE M 475.1-1A, *Identifying Classified Information,* dated 2-26-01, which provides requirements for managing the DOE classification and declassification program, including details for classifying and declassifying information, documents, and material.

p. DOE O 200.1, *Information Management Program*, dated 9-30-96, which combines broad information management topics under a single Order.

q. DOE O 474.1A, *Control and Accountability of Nuclear Materials*, dated 11-20-00, which contains the principles and requirements for nuclear materials control and accountability.

r. DOE M 474.1-1B, *Manual for Control and Accountability of Nuclear Materials*, dated 6-13-03, which contains detailed information regarding the requirements for nuclear materials control and accountability.

s. *CRC Handbook of Chemistry and Physics*, 83rd edition, David R. Lide, editor. (Available online at www.hbcpnetbase.com/).

t. NMMSS RIS Directories, which contain lists of valid RISs for DOE/NNSA and NRC nuclear facilities, Department of Defense (DoD) facilities, Mutual Defense facilities, foreign facilities, and specific organizations. For domestic facilities, these documents list the names, addresses, and telephone numbers of the facilities, and any special requirements for notification concerning shipment of nuclear material. For international facilities, the directory includes IAEA facility codes and IAEA country codes. Copies are available from the NMMSS operator but are distributed as Official Use Only, Exemption 2, from Freedom of Information Act (FOIA) Requests.

u. *International Nuclear Materials Tracking System (INMTS) Data Entry Procedures*, a manual for preparation and submission of information concerning U.S.-supplied nuclear materials in foreign countries in which the U.S. has an interest. For further information regarding INMTS, contact the DOE Office of Plutonium, Uranium and Special Materials Inventory.

v. *Agreement Between the United States of America and the IAEA for the Application of Safeguards in the United States, and Additional Protocol*, which supports the Treaty on the Nonproliferation of Nuclear Weapons, provides for the application of IAEA safeguards to nuclear materials in facilities in the U.S. not associated with activities of direct national security significance. Copies are available from the U.S. Government Printing Office.

w. IAEA Information Circular 207 (INFCIRC/207), "Notification to the Agency [IAEA] of Exports and Imports of Nuclear Material," dated 7-26-74, and amendment letter, dated 9-15-82, which requests that the U.S. report exports and imports of quantities of nuclear materials. Copies are available from the Office of Arms Control and Nonproliferation (NA-24) or the IAEA.

x. American National Standards Institute (ANSI) N15.1-1970, "American National Standard Classification of Unirradiated Uranium Scrap," which provides a classification system for scrap material containing recoverable amounts of uranium.

y. ANSI N15.10-1987, "American National Standard Classification of Unirradiated Plutonium Scrap," which provides a classification system for scrap material containing recoverable amounts of plutonium.

z. "Nuclear Wallet Cards," 6th edition, January 2000. From the National Nuclear Data Center, Brookhaven National Laboratory. Wallet Cards are the source documents for nuclear material properties including radioactive decay constants. (Online at www.nndc.bnl.gov)

aa. 10 Code of Federal Regulations (CFR), Chapter I, "Nuclear Regulatory Commission," contains the regulations applicable to NRC and Agreement State licensees involved in activities concerning nuclear materials not subject to DOE/NNSA requirements.

bb. 10 CFR 835, "Occupational Radiation Protection," which provides guidance on non-SNM sealed radioactive sources (10 CFR 835.1202) and sealed radioactive source control (10 CFR 835.1201).

cc. NUREG-006 and NUREG-007, which are regulations governing facilities that are licensed by the Nuclear Regulatory Commission when the nuclear material being reported is not U.S. Government-owned and located at a licensee facility.

dd. Clinger-Cohen Act of 1996 (also the Information Technology Management Reform Act, P.L. 104-106, Division E), which provides the basis for coordination of information technology resources as noted in OMB Circular A-130.

ee. Office of Management and Budget (OMB) Circular A-130, which establishes policy for the management of Federal information resources, including procedural and analytical guidelines for implementing specific aspects of these policies.

ff. Government Performance and Results Act of 1993 (P.L.103-62), which requires heads of executive Agencies to submit to the Director of the Office of Management and Budget (OMB) and the Congress 5-year strategic plans for performance goals of the Agencies' programs, to be updated at least every 3 years.

gg. P.L. 83-703, Atomic Energy Act of 1954, as amended.

hh. P.L. 93-438, Energy Reorganization Act of 1974, as amended.

ii. P.L. 95-91, Department of Energy Organization Act of 1977, as amended.

jj. *The Performance-Based Management Handbook—A Six-Volume Compilation of Techniques and Tools for Implementing the Government Performance and Results Act of 1993* (September 2001). Available online at www.orau.gov/pbm/pbmhandbook/pbmhandbook.html.

kk. 42 U.S.C. 2074 and 2094.

ll. 42 U.S.C. 2112 or 2121(c).

20. CONTACT. Comments and inquiries may be directed to the Materials Control and Accountability Program, Security Policy Staff, Office of Security, 301-903-2534.

BY ORDER OF THE SECRETARY OF ENERGY:

KYLE E. McSLARROW
Deputy Secretary

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ATTACHMENTS

TABLES

CHAPTER I. INSTRUCTIONS FOR APPLYING FOR, CHANGING, OR DELETING A REPORTING IDENTIFICATION SYMBOL (RIS)

1. INTRODUCTION.

a. Each contractor and facility RIS is associated with a specific cognizant field element or site office as listed in Table I-1 below. DOE/NNSA organizational changes may impact the lettering conventions listed in Table I-1. For guidance regarding the impact of organizational changes on the RIS structure, contact the NMMSS operator.

Table I-1. RIS Lettering Convention for Cognizant Field Element or Site Office.

Letter	Field Element or Site Office
A	NNSA Sandia Site Office, NNSA Los Alamos Site Office, NNSA Service Center, NNSA Pantex Site Office, NNSA Kansas City Site Office
B	U.S. Enrichment Corporation Headquarters, Bethesda
C	DOE Chicago Operations Office
D	NNSA Savannah River Site Office
F	DOE Oak Ridge Operations Office or NNSA Y-12 Site Office
G	DOE Ohio Field Office
H	DOE Richland Operations Office
J	DOE Idaho Operations Office
K	NNSA Schenectady Naval Reactors
L	NNSA Livermore Site Office
N	NNSA Nevada Site Office
O	DOE Special Projects Office—Rocky Flats
P	NNSA Pittsburgh Naval Reactors
Q	DOE Office of Security (e.g., QA RIS's) and/or NNSA Service Center (e.g., QZ RIS's)
R	International Control Account
S	Storage Control, Foreign-Owned U.S. Enrichment Corporation
V	Nuclear Materials Burial Ground DOE Office of Environmental Management or NRC or NNSA Site Offices if Applicable
XYZ	U.S. Nuclear Regulatory Commission Nuclear Material Safety and Safeguards

b. The cognizant field element or site office will forward requests for new RISs or revisions of RIS information and any requests for activation, or deactivation of a RIS accompanied with the effective date of activation, deactivation, and/or transfer, to—

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c. Changes and/or deletions to a RIS page must be directed to the cognizant field element or site office addressee listed in the Table I-1 above.

d. A RIS consists of a minimum of three alphabetic characters and in special circumstances a maximum of four characters.

e. The first letter in the 3-letter RIS identifies the cognizant field element or site office. See Table I-1.

f. The meanings of the second and third letters of a RIS are shown in Table I-2. The following are examples of second and third letters and their meanings

(1) C—Under the Chicago Operations Office cognizance

(2) A—Cost center is at the Operations Office

(3) K—Exempt from the Code of Federal Regulations

Table I-2. Meaning of Second and Third Letters of RIS.

Letter	Second Letter of RIS	Third Letter of RIS
A through K	Cost center for nuclear material is the operations office (non-integrated contractor)	Exempt from CFR (subject to NRC Directives)
L through Z	Cost center for nuclear material is other than the operations office (integrated contractor)	Non-exempt from CFR

g. In the following examples, the second and third letters of a RIS may have no special meaning.

(1) When the first letter is R, the RIS is a foreign, non-mutual defense entity.

(2) When the first letter is V assigned by DOE/NRC, the RIS does follow second- and third-letter criteria.

(3) When the first letter, V, was assigned by the NRC, the RIS does not follow the second- and third-letter criteria.

(4) When the first letter is X, Y, or Z, the facility is under the cognizance of the NRC.

h. RIS coding is structured to fulfill the reporting requirements of the Office of Security and the Office of the Chief Financial Officer. However, in some instances, there are RISs assigned simply to satisfy financial record purposes in the Office of the Chief Financial Officer.

i. RIS structure and the current activities of the facility to which it is assigned may differ if a change in the costing status of the facility has been made since the initial assignment of that RIS.

2. DOE/NNSA PROCEDURE AND CRITERIA FOR ESTABLISHING A RIS.

a. To establish a RIS the following procedure applies.

(1) A request from the materials control and accountability (MC&A) field representative, who may be either a DOE/NNSA or contractor employee, is routed to the cognizant field element or site office for review and approval.

(2) A DOE/NNSA Headquarters (HQ) sponsoring program office must approve activities for which the RIS is requested.

(3) The request is then sent from the cognizant field element or site office, through the appropriate HQ program office, for coordination with the Office of Plutonium, Uranium and Special Materials Inventory to establish the RIS required for DOE-/NNSA-approved activities.

(4) The Office of Plutonium, Uranium and Special Materials Inventory instructs the NMMSS operator to add the RIS.

b. Justification must exist before a new RIS can be established. The following is a list of common reasons for requesting a new RIS. The facility must—

(1) anticipate Departmental authorization to contain an inventory of nuclear materials within the next 12 months,

(2) be involved in international shipments or receipts of nuclear materials, or

(3) be storing or processing material under International Atomic Energy Agency safeguards.

c. A facility that does not meet the above criteria but believes a RIS is necessary for operations can request a RIS by submitting proper justification and documentation to the Office of Plutonium, Uranium and Special Materials Inventory by following the procedure outlined in paragraphs 2a(1)-2a(4) above.

3. APPLICATION FOR A RIS. To establish a new RIS, the cognizant field element or site office must provide the following information to be listed in the NMMSS directory.

a. Facility/RIS information.

(1) Facility name.

(2) Date RIS issued.

(3) Contract number.

(4) Code of responsible financial organization.

(5) Field element or site office RIS.

(6) Contractor type.

(7) Operation type.

(8) FAX Numbers.

(a) Classified.

(b) Unclassified.

(9) FAX verification number.

(a) Classified.

(b) Unclassified.

(10) Secure Information Management and Exchange Network (SIMEX) routing indicator.

(11) Additional information on facility/RIS.

b. Contact information.

(1) Nuclear materials representative (NMR).

(a) Name.

(b) Telephone number.

(2) Alternate NMR (NOTE: More than one alternate NMR is allowed).

(a) Name.

(b) Telephone number.

(3) Nuclear materials financial representative.

(a) Name.

(b) Telephone number.

(4) Authorized contact for information changes.

(a) Name.

(b) Telephone number.

(5) Additional contact/inquiry information.

c. Mailing information.

(1) Addresses (including facility name and unclassified address).

(2) For a classified address, use guidance from the Safeguards and Security Information Management System (SSIMS). Contact the facility field element or site office for the current phone number. Do not enter a classified address with this data.

(3) Additional financial and mailing information.

d. Shipping address and information.

e. Additional information not covered elsewhere.

f. The following logistical information is required for RIS directory appendices and program controls. Enter "N/A" where requested data is not applicable.

(1) Effective date nuclear materials will be transferred from old contractor/facility (enter old RIS) to new contractor/facility.

(2) Effective date the field element or site office will assume responsibility for the new RIS.

(3) Frequency of the new RIS inventory reporting (monthly or quarterly).

(4) The Nuclear materials inventory profile (I-17 report from NMMSS) for the new RIS (may be the same as the old RIS; if not, provide new profiles).

(5) Level of classification for transactions, inventory, and material balance reports (MBRs) throughput for the new RIS and for related reporting products from NMMSS.

(6) Mode of transmitting input data from the new RIS to NMMSS.

(7) Cost center for new RIS's financial activity.

(8) Authorized contacts (may be different from NMR or alternate) and phone numbers.

g. NMMSS operator staff will work with each facility to identify reports that must be submitted for each RIS.

4. DEACTIVATION OF A RIS.

a. RIS deactivation will occur when a facility's authorization to store/handle nuclear materials inventory is withdrawn. Before deactivation, all open transactions must be resolved and all inventory removed to a balance of zero.

b. Notification of deactivation is sent from the cognizant field element or site office to the Director, Office of Plutonium, Uranium and Special Materials Inventory, who will instruct the NMMSS operator to deactivate the RIS.

c. An assessment by the MC&A field representative must conclude the following.

(1) All physical MC&A activities have been terminated.

(2) All material has been shipped from the facility.

(3) The balance for that RIS in NMMSS is zero (0).

(4) No investigations or audits are under way concerning any aspect of MC&A.

d. A waste facility's RIS must not be removed except with specific approval of the Program Secretarial Officer through the cognizant field element or site office and upon coordination with the Director, Office of Plutonium, Uranium and Special Materials Inventory.

e. A parent RIS must not be deactivated when a sub-RIS is still active.

5. CHANGING RIS INFORMATION.

a. The following procedure must be followed to change information entered on a facility's RIS directory page.

(1) Make a copy of both sides of the page from the RIS directory for each affected RIS.

(2) Draw a line through the outdated/erroneous information on the copy.

(3) Immediately above the strike-out, print the new information clearly.

(4) Submit the pages marked for change to the NMR or other authorized person who will sign and date all directory pages on which changes have been recorded. Unsigned changes cannot be made.

(5) Send page changes to the cognizant field element or site office for approval and forwarding to the NMMSS operator.

b. The change request must be approved by the MC&A field representative who submits the approved request to the NMMSS operator for action.

c. The NMMSS operator will provide a written copy to the Office of Plutonium, Uranium and Special Materials Inventory for information/file purposes.

6. ADDITIONAL INFORMATION

a. The NMR for each RIS is responsible for the timely and accurate submission of data and periodic reports to NMMSS. The duties of the NMR are detailed in the site or facility MC&A plan. See also DOE M 474.1-1B.

b. The nuclear material custodian for each Material Balance Area (MBA) within a RIS will work closely with the NMR to ensure accurate inventory and transaction information. The duties of the NM custodian are detailed in the site or facility MC&A plan. See also DOE M 474.1-1B.

CHAPTER II. GENERAL INSTRUCTIONS

This chapter provides general instructions for all reports sent to NMMSS and additional guidance where appropriate. Three types of information are submitted to NMMSS: transactions, material balances, and inventories. Additional guidance for specific types of reporting is provided in subsequent chapters.

1. REPORTING TO NMMSS.

   a. Facilities must report data to the NMMSS electronically. If electronic means are unavailable, reporting using paper forms is coordinated through the cognizant field element or site office or with the Office of Plutonium, Uranium and Special Materials Inventory.

      NOTE: In this Manual, paper forms and form numbers are mentioned for instructional purposes. The fact that a paper form is mentioned does not relieve the facility from the requirement to report electronically. Under emergency conditions or if a special, non-standard report is required, paper forms may be used.

   b. When a reportable quantity of an accountable nuclear material is recovered during deactivation, decommissioning, or decontamination, the recovered material must be reported to NMMSS, even when the material has been previously written off the NMMSS records. Use DOE/NRC F 741.

   c. Facilities are encouraged to use the NMMSS software package, Safeguards Management of Software (SAMS) to edit site data prior to submitting electronic data to NMMSS. SAMS software may be obtained from the NMMSS operator.

2. DATA ACCURACY. Cognizant DOE/NNSA field element or site offices are responsible for ensuring that the NMMSS accurately reflects nuclear material inventory data at license-exempt facilities, and DOE-/NNSA-owned nuclear material inventory data at licensed facilities. (See Attachment 2.)

3. NMMSS REPORTABLE ELEMENTS AND ISOTOPES AND REPORTING UNITS.

   a. The elements and isotopes that DOE/NNSA must report to NMMSS are shown in Table XV-1.

   b. Weights must be reported in the metric weight units specified for each nuclear material as shown in Table XV-1.

   c. Both element and isotope weights are reported if they round to a reportable quantity. In cases where the element is a reportable quantity, but the isotope is not

a reportable quantity, the material must still be reported, but for the isotope, enter 0 (zero). In cases where the isotope is a reportable quantity, but the element is not a reportable quantity, the material must still be reported but for the element enter0 (zero). (See paragraph 6, below, and Table II-1)

4. MATERIAL TYPE CODES. Table XV-2 provides the material type (MT) codes used by DOE/NNSA for reporting nuclear materials. Note that other entities (e.g., IAEA) may use different codes for the same materials.

5. UNITS, STANDARDS, CONVERSIONS, AND DATA DEFINITIONS.

a. Metric units are required for reporting information to the NMMSS.

b. If weights are in pounds, the conversion factor 0.45359 kg/pound must be used.

c. A year is defined as 365.2422 days.

d. Nuclear material properties (e.g., half-lives) can be found online at www.nndc.bnl.gov. Select Nuclear Wallet Cards, 6th edition. For other material properties and equations, see CRC Handbook of Chemistry and Physics.

e. Measurements that have been made and records that have been kept in volume units must be converted to the reporting unit for the MT. Material properties and equations in the CRC Handbook of Chemistry and Physics must be used to convert gas or liquid volumes to the appropriate units.

f. Parts per million calculations will be recorded as—

(1) ppmv for volume basis,

(2) ppm for mass basis, and

(3) ppma for number of atoms basis.

g. The calculation for ppm of U-232 in total U is a mass basis.

h. NMMSS will not accept the slashes (\ and/), semi-colon (;), colon (:), question mark (?) or number sign (#). Do not use those characters when entering data.

i. For the definitions of data elements, e.g., field length and whether a numeric or alpha character is allowed, see NMMSS Reports D-23 (for DOE) and D-24 (for NRC), available from the NMMSS operator.

6. ROUNDING POLICY.

a. Quantities will be reported as shown in Table II-1 with fractions of ½ or greater rounded upwards and fractions of less than ½ of a reporting unit reported as the number zero (0).

b. If during a transaction there is the potential for rollup of multiple, discrete, items each of which is at less than ½ of a reportable unit to a Category IV or greater quantity of SNM, the shipper and receiver will decide how to ensure appropriate accounting documentation in NMMSS. Both the shipper and receiver must agree on the method to use.

c. When performing general calculations not related to discrete items in a transaction (see paragraph 6b above), do the calculation first before rounding.

d. For software development purposes, sites or facilities may use more significant digits than noted in this Manual.

Table II-1. Rounding Policy.

Quantity	Action
Equal to or greater than 0.5 of the reporting unit	Report to the nearest whole reporting unit
Less than 0.5 of the reporting unit	Report as 0 (zero)

7. NUCLEAR MATERIAL BLENDING TRANSACTIONS.

a. Blending or crossovers of materials are reported to the NMMSS to ensureaccurate records of the facility's material inventory. The report to the NMMSS would show the reduction in one or more quantities and the increase in another.

(1) Inventory change code 22 (from other materials) is used to show the gain in material.

(2) Code 71 (degradation to other materials) is used to show the reduction of material.

b. The NMMSS has been programmed to recognize a blending or crossover operation by the order in which the codes 22 and 71 are presented. The lines of data on DOE/NRC F 741 must appear in sequence. That is, a line or lines with code 22 must be followed by matching line or lines with code 71. There are two methods of matching codes 22 and 71. One method is to pair code 22 with the

corresponding 71, a second method is to list a series of code 22s followed by corresponding 71s (See Table II-2 below for an example).

c. When reporting a blending transaction with multiple sets of code 22/71 combinations, the position of the 22 in the data set must correspond to the position of the 71 in the data set. For example, row number 1 must correspond to row number 6. This case represents the blending of material from summary MT 10 to summary MT 20. Row 2 must correspond with row 7 in the data set, etc. For specific format requirements, refer to the guidance for electronic format data submissions.

Table II-2. Blending Transaction Example.

Row Number	Type Inventory Code	Summary Material Type
1	22	10
2	22	10
3	22	50
4	22	50
5	22	50
6	71	20
7	71	81
8	71	83
9	71	83
10	71	83

d. In reporting blending operations, follow the code 22 and 71 matching rules plus the following.

(1) As an internal transaction, RIS entries must be identical.

(2) Use action code M.

(3) The two data lines, codes 22 and 71, must agree in terms of quantities, plus or minus a reportable unit.

(4) Plutonium blending operations must also be reported. For such blending operations, only the element weight (total plutonium) is compared. The different MTs of plutonium account for the different isotopes of plutonium. For example, the reportable isotope for MT 50 is Pu-239+241. The reportable isotope for MT 83 is Pu-238. When blending these plutonium MTs, there is no direct relationship between the individual isotope weights.

(5) For blending operations with different accountable nuclear materials, the relative quantity (mass) of each accountable material is to be maintained.

8. OWNER CODES. The codes in Table XV-3 are used to identify ownership of nuclear material for transactions and inventory reporting. For instructions regarding the proper owner code to be used in a particular circumstance, contact the NMMSS operator.

9. LIMITS OF ERROR ON TRANSFERS OF SPECIAL NUCLEAR MATERIAL AND TRITIUM.

a. DOE/NNSA contractors will determine and notify DOE/NNSA of limits of error on transfers of SNM and/or tritium (except in the case of tritium in reservoirs), as specified in DOE M 474.1-1B.

b. Such notification will be made on a DOE/NRC F 741.

c. Limits of error will be recorded on all copies of the form.

10. SHIPMENTS/RECEIPTS.

a. A shipper or receiver of nuclear material may be either a U.S. Government entity, NRC licensee, foreign entity, or contractor to the U.S. Government.

b. The organizations to which this Manual is applicable (See Attachment 1)are responsible for following the instructions contained herein for reporting the shipment or receipt of nuclear material to NMMSS.

11. NORMAL OPERATIONAL LOSSES (NOLs), MEASURED DISCARDS AND ACCIDENTAL LOSSES.

a. The instructions in this section are provided to supplement the reporting procedures for NOLs, measured discards and accidental losses. Losses and discards are reported using a DOE/NRC F 741.

b. When reporting NOLs, measured discards or accidental losses, the following apply.

(1) License-exempt and/or licensed contractors not subject to the requirements of the U.S./IAEA Safeguards Agreement will use one of the following. (See Chapter IV for transaction definitions.)

(a) A-M transactions to remove loss or discard material from active inventory for subsequent shipment to a waste management site.

(b) A-A transactions remove material from active inventory when—

1 it is shipped to a waste management site,

2 it has been discharged to the atmosphere or the ground, or

3 it has been consumed in use.

(2) License-exempt and/or licensed contractors subject to the requirements of the U.S./IAEA Safeguards Agreement will use A-A transactions.

(3) If paragraph 11b(1)(a) or 11b(1)(b) applies, one of the letters listed below may be appended to the facility's 3-character RIS, as appropriate. The 3-character identifier will be entered as the shipper's RIS in block 1 of DOE/NRC F 741 or as the receiver's RIS in block 2. The 3-character identifier must be on file with the NMMSS before it is used for reporting to the system. The following letters are for use by all reporting facilities.

(a) A—discharge to the atmosphere,

(b) G—discharge to the ground or a body of water or stream,

(c) I—discharge to run-off, and

(d) R—consumed during use.

NOTE: It is understood that recovery of material discharged to the ground as a result of an accidental loss may not be possible.

(4) The following letters are for use only by license-exempt contractors subject to the requirements of the U.S./IAEA Safeguards Agreement and licensed contractors.

(a) H—a waste holding area from which material could be recovered and

(b) L—a lagoon, holding pond, or tank from which material could be recovered.

(c) The use of codes H and L is optional for non-licensed contractors not under IAEA reporting requirements.

(5) When reporting NOLs or measured discards, enter code 74 as the inventory change code in block 26c or 27c of DOE/NRC F 741, as appropriate.

(6) When reporting accidental losses, enter code 75 as the inventory change code in block 26c or 27c of F 741, as appropriate.

(7) When reporting the return to active inventory of material previously reported as an NOL, measured discard, or accidental loss, follow the instructions below. (See Table XV-22.)

(a) A previously reported NOL, measured discard, or accidental loss may be reversed through the adjustment process.

(b) An A-B transaction with no inventory change code, (transfer from a V RIS, or waste disposition area, to facility) may be reported to the NMMSS as a receipt on line 30 of the MBR generated for the receiving facility. [NOTE: This applies only if the waste disposition area is an onsite waste holding area (H) or a lagoon (L).]

12. WASTE AND BURIAL SITES.

a. For site closure or decommissioning, or if the receiver requires documentation, report waste transactions as follows.

(1) Document transactions of waste material using DOE/NRC F 741.

(2) For transfers of nuclear material from a waste disposition area (i.e., a 3-character RIS with a fourth character H, G, or L appended) to a waste management site (V RIS), the applicable composition/facility code will be entered in block 26h of the DOE/NRC F 741 documenting the transfer.

(3) Transfers to or from a waste management site (V RIS), including transfer from one waste management site to another, and transfers identified with character H appended to the RIS, will be reported to the NMMSS on a DOE/NRC F 741.

(4) Shippers and receivers will evaluate and make changes and adjustments to records as necessary based upon re-measurement.

b. A waste disposition area on the site subject to both DOE/NNSA and NRC reporting requirements will be assigned at least one 4-character RIS. The first three characters must correspond to the DOE/NNSA or the NRC RIS for the facility. It is only required that one 3-character RIS be assigned for reporting data for the waste disposition area. The assignment of more than one RIS to a waste disposition area will be at the discretion of the responsible field element or site office.

13. INVENTORY DIFFERENCE DATA. An inventory difference (ID) can arise from a number of factors. To determine when an inventory difference is significant, see DOE M 474.1-1B. Corrections to inventory records when an inventory difference is discovered are done using a DOE/NRC F 741. Additionally, inventory differences of SNM require an explanation. See Chapter XIII for more information regarding inventory, and inventory difference, reporting.

14. RADIOACTIVE DECAY.

a. Radioactive decay will be reported as explained in Chapter XV, Tables XV-5, XV-6, and XV-7.

b. Facilities will send data on reportable quantities of radioactive decay to the NMMSS on a DOE/NRC F 741 as per instructions in Chapter III of this Manual.

c. The shipping facility will calculate and report decay on material in transit up to the first day of the month in which the material was shipped.

d. Using a locally generated report or memorandum, the shipper will inform the receiver of the date on which decay for the items being shipped was last calculated.

e. The receiving facility will calculate decay for the entire month in which the shipment was received or in which the shipment was in transit at the report date; however, no decay will be reported until the end of the month in which the material is actually received.

f. For material in transit over the period from the end of one month through the beginning of another, the receiving facility will calculate and report decay for a 2-month period, i.e., the month in which the material was shipped and the month in which it was received.

g. Daily decay constants will be calculated using the formula below (unless half-lives are stated in days).

$$\lambda = \mathrm{Ln}(2) / (T_{1/2} * 365.2422)$$

where—

λ = Decay Constant ($days^{-1}$)
$T_{1/2}$ = Half Life (years)
1E-3 = .001
1E-5 = .00001

h. Decay calculations are made for days, months, and quarters. In general, daily decay calculations are less likely to result in errors. Month and quarter decay

factors are provided for the convenience of the user. To calculate decay, use the following formula.

$$Qt = Qo * e^{(-d* C)}$$

where—

Qt = quantity of material left at time t after undergoing decay
Qo = initial quantity of material before calculating decay
d = number of days
C = decay constant from table. Can be either days, months, or quarters.

CHAPTER III. NUCLEAR MATERIAL TRANSACTION REPORTING—GENERAL

1. INTRODUCTION. This chapter provides general instructions for transaction reporting. Special procedures must be used in certain circumstances. In addition to the instructions in this chapter, specific procedures for completing each form and for submitting the data to NMMSS are contained in Chapters IV and V. The in-transit accounting rule that DOE has adopted states that when nuclear material leaves the shipper, it officially goes on the receiver's books in NMMSS.

   a. Shipper-Receiver Differences. Consult DOE M 474.1-1B for guidance on evaluating shipper-receiver differences.

   b. Transactions within the U.S. (non-DoD). Instructions are provided in Chapters III, IV, and V.

   c. Transactions of Obligated Material. See Chapters III, IV, V, and VIII of this Manual.

   d. Transactions Involving DoD. In any instance where a facility has a transaction involving a shipment to or receipt from DoD pursuant to 42 U.S.C. 2121(b), or 2121(c), which address DOE/NNSA and mutual defense activities, facilities, either contractor or U.S. Government, will prepare and distribute DOE/NRC F 741 in accordance with instructions provided in Chapter VI of this Manual and any additional guidance which may be provided by individual field elements or site offices.

   e. Transactions Involving International Accounts. See Chapter VII of this Manual for details.

      (1) Foreign nations, foreign regional organizations, supranational organizations, or foreign facilities (hereinafter referred to collectively as foreign entities) may receive or return U.S. Government-owned material obtained by sale, lease, grant, donation, or loan from contractor facilities, or from NRC or Agreement State licensees, pursuant to 42 U.S.C. 2074 and 2094 and 42 U.S.C. 2112 or 2121(c).

      (2) For a transaction involving an export/import, the facility must prepare both the shipper's and the receiver's data and distribute the forms.

         (a) For exports, the shipper should request that the foreign receiver sign and return the DOE/NRC F 741 to the shipping facility to document the transfer.

(b) For imports, if the foreign shipper's data are incomplete or unknown, the receiver should contact the cognizant field element or site office for further guidance.

(3) International transfer data should be handled according to the instructions for data input to the International Nuclear Material Tracking System (INMTS) contained in *INMTS Data Entry Procedures*. For further guidance regarding INMTS, contact the NMMSS operator.

(4) For international transfers that are covered by more than one export/import license, a separate DOE/NRC F 741 must be prepared for the material covered by each individual export/import license. See Chapter VII of this Manual for details.

(5) Tracking imported material having foreign accounting obligations requires the use of special tracking procedures. See Chapter VIII of this Manual for details.

f. Transfers of Headquarters Display Items.

(1) QAA has been assigned as the RIS for transfers to and from Headquarters (i.e., either Forrestal or Germantown campuses).

(2) Transfers of display items or samples containing nuclear material to Headquarters will be documented on DOE/NRC F 741 as a transfer from the shipping facility to—

U.S. DOE, Office of Security
Security Policy Staff
Safeguards and Security Policy
Material Control and Accountability
SO-114, 1000 Independence Avenue, S.W.
Washington, D.C. 20585-1290

(3) The custodian in the Headquarters element receiving the nuclear material will be responsible for maintaining surveillance of the material, as documented in the Headquarters nuclear MC&A plan.

(4) The QAA NMR will be responsible for periodic reporting on the material.

(5) Headquarters personnel returning or shipping out display items or samples containing nuclear material are responsible for advising the NMR for QAA of the proposed shipment. The nuclear material custodian for QAA must prepare the necessary DOE/NRC F 741 for shipment and notify the NMR.

g. Transfers of Depleted Uranium. The facility will prepare and distribute DOE/NRC F 741 for all shipments and receipts of depleted uranium that round to a reportable quantity (i.e., 1 kg or more).

2. TRANSFER REPORTING TIMELINES. Data on all transactions occurring during a calendar month will be submitted no later than 8 working days following the end of the month during which the transactions occurred. These extra days are justified as time needed for monthly closure of the books for reasons of monthly adjustments. Table III-1 shows deadlines for distribution of DOE/NRC F 741.

[123]Table III-1. Submission Dates, Physical Transfer of Material.

Type of Physical Transfer for DOE/NRC F 741 Preparation and Distribution	Work Days After Action
Shipper distributes to NMMSS and receiver for domestic shipment	1[2]
Domestic receiver distributes to NMMSS and Shipper on domestic shipment	10[1]
Shipper distributes to NMMSS shipment and foreign receiver's side of the form	1[2]
Domestic distribution to NMMSS reporting material received from foreign shipper	3[3]
Corrections to submitted data sent to NMMSS and other party	1[2]

3. TRANSACTION DOCUMENTATION METHODS. Facilities must distribute transaction documentation electronically unless manual/paper submission is coordinated through the cognizant DOE/NNSA field element or site office or the Office of Plutonium, Uranium and Special Materials Inventory.

a. Electronic Method.

(1) Procedures and instructions in DOE O 474.1A, DOE M 474.1-1B, and this Manual will apply except that signatures on transaction documents are not required. Internal controls will ensure that data transmitted has been properly authorized.

(2) The sender and recipient of electronic data will produce hard copies for use of requesters.

[1]10 workdays after receipt of shipment.
[2]1 workday after receiving the foreign receiver's data.
[3]3 workdays after receipt of material at the domestic facility.

(3) The hard copies will contain the information normally included on DOE/NRC F 741.

(4) The electronic method of handling and transmitting transfer data will follow all requirements of 10 CFR, Chapter I for activities involving NRC or Agreement State licensees.

b. Manual Method.

(1) Facilities with a low volume of reporting activity may prepare DOE/NRC F 741 in paper form if coordinated with the cognizant DOE/NNSA field element or site office or the Office of Plutonium, Uranium and Special Materials Inventory.

(2) Such facilities are encouraged to convert to electronic form preparation in coordination with the NMMSS operator.

c. Either Method.

(1) Regardless of method used, nuclear material types, elements, and isotopes to be reported, and their respective reporting units will be as specified in Table XV-1.

(2) For each detail line of shipper/receiver data entries on DOE/NRC F 741, material quantities reported by assay may be summarized, but only within detailed MT assay ranges (e.g., for enriched uranium, within 10 to 20 percent U-235 or within 80 to 92 percent U-235, as appropriate) required for reporting inventory (See Chapter XIII, Inventory Reporting).

d. Agreement of Transaction Data. Data sent to NMMSS will agree on a line-for-line-basis with data sent between the shipper and receiver on DOE/NRC F 741, or electronic equivalent.

4. CLASSIFICATION AND SECURITY REQUIREMENTS. DOE/NRC F 741 will be classified using appropriate guidance and following the procedures contained in DOE M 475.1-1A and will be marked with appropriate classification markings and transmitted following procedures contained in DOE O 471.2A and DOE M 471.2-1C.

5. DISTRIBUTION OF DOE/NRC F 741.

a. Transaction information is generally distributed electronically; however, a few small facilities continue to use the paper DOE/NRC F 741.

b. The distribution requirements, below, are to be followed regardless of transaction format.

(1) If an electronic format is used, do not also distribute a paper copy unless specifically requested by the recipient.

(2) It is recognized that some field elements or site offices do not desire copies of transaction information in any format but, instead, rely on NMMSS reports to satisfy local needs.

(3) If field elements or site offices desire to receive copies of transaction data, whether electronically or on paper, the following apply.

(a) As an absolute minimum requirement for distribution of transactions information, copies should be provided to the other party to the transaction and to the NMMSS operator at RIS QFA.

(b) For one-party transactions, the facility generating the transaction must also provide a copy to the NMMSS operator at QFA.

c. Primary Distribution is illustrated in Table III-2.

Table III-2. Primary Distribution.

Type of Transaction	Other Party To Transaction	QFA	Shipper's Field Element (If Desired)	Receiver's Field Element (If Desired)
Shipment of Material	Yes	Yes	Yes	Yes
Receipt of Material	Yes	Yes	Yes	Yes
One-party Transaction	Yes	Yes	Yes	Yes

d. Secondary Distribution is illustrated in Table III-3. Secondary distribution is the distribution of transaction data by NMMSS operator staff, RIS QFA, based on receipt of transaction data by primary distribution.

Table III-3. Secondary Distribution.

Transactions With Specific Material Types and Conditions	Copy Distributed to Operations/Site Office
Depleted uranium, normal uranium, enriched uranium, californium, enriched lithium, U-233, thorium under loan/lease to a licensee	Oak Ridge Field CFO and or Financial Managers
Americium-241, plutonium, plutonium-238, plutonium-242, neptunium-237, tritium, deuterium under loan/lease to a licensee	Savannah River Field CFO's and or Financial Managers

e. The transaction data selected for secondary distribution is limited to ownership code G, reflecting U.S. Government ownership of material under the loan/lease program or sales of material.

f. Distribution is made to the field element or site office responsible for the specific material under loan/lease to the element's or office's financial representative.

6. FACILITY TRANSFERS OF MATERIAL TO A FOREIGN ENTITY. The shipper will include with the shipment a copy of DOE/NRC F 741 containing the shipper's data. (See Chapters VII, VIII, and IX and refer to field element or site office guidance for further instructions.)

7. FACILITY RECEIVES NUCLEAR MATERIAL FROM A FOREIGN ENTITY. See Chapters VII, VIII, and IX and refer to field element or site office guidance for further instructions.

8. TRACKING OF FOREIGN OBLIGATED MATERIAL WITHIN THE U.S.

a. Each facility will submit information necessary to track materials among facilities that use foreign obligation codes.

b. The shipper is responsible for supplying foreign obligation information for each shipment. Refer to Chapter VIII for further information.

c. If the resolution of a shipper-receiver difference on detail lines of data results in a reduction of the shipper's value to an amount less than the obligated amount, the obligated amount must also be reduced. The obligated amount may not be greater than the amount of like material shipped.

9. TRANSFERS INVOLVING THE DoD. Except for transfers of nuclear material in naval cores and associated items, transactions will be documented in accordance with the instructions provided in Chapter VI.

10. TRANSFERS OF NUCLEAR MATERIAL BETWEEN DOE/NNSA CONTRACTORS AND LICENSEES.

a. Transfers to Licensees. DOE/NNSA contractors who receive authorization and requests for distribution of nuclear material to a licensee, pursuant to 42 U.S.C. 2073, 2093, and 2111, will document such transfers using DOE/NRC F 741.

b. Transfers from Licensees. Transfer documents for nuclear material shipped to DOE/NNSA for credit or service by a licensed facility will be prepared and

distributed by the shipper in accordance with the requirements of the CFR. When such material is received it will be documented by the receiver using DOE/NRC F 741.

c. Variable Tails Assay Option (VTAM) Code. This field is used only by uranium enrichment facilities to identify the transaction tails assay selected by their customers. This information will also appear in the miscellaneous block (21) of DOE/NRC F 741 (e.g., variable tails assay 0.21 percent). The VTAM code is required for all documents having a code F transaction indicator (TI). VTAM codes to be used are listed in Table XV-20.

11. INTERNAL PROJECT TRANSFERS. It is required that transfers of material between DOE/NNSA projects under the same RIS be reported to the NMMSS (i.e. a change in project numbers). Reporting is accomplished by submitting DOE F DP-749 or by electronic data submission. Instructions for internal project transfers follow the general instructions for transaction reporting with the following special guidance.

a. Facilities transmitting data to the NMMSS by automated means need not complete DOE F DP-749, but must follow the data format defined below.

(1) Negative Values. Enter a minus sign or a dash preceding the digits to show a negative number.

(2) Transaction Identification Information (columns 1–18 on DOE F DP-749), described below, is common to both header and detail records.

(a) **Shipper columns 1–4**. Enter the shipper's or originator's RIS for transactions involving project transfers, left justified.

(b) **Receiver columns 5–8**. For project transfers enter the receiver's RIS left justified. The shipper's and receiver's RISs must be the same.

(c) **Columns 9–14, Internal Transaction Number**. Enter the number which indicates a specific transfer in a transfer series. An alphanumeric journal entry number may be used in lieu of the transfer number.

(d) **Column 15, Correction Number**. When a shipper or receiver issues a corrected document to adjust data previously reported, an alphanumeric character is appended to the original transfer number to identify the transaction as a correction. For correction or adjustment entries, this is a required data field. For all other transactions, this field is left blank.

(3) Transaction Codes (THAN CODE).

(a) **Column 16, Processing Code (PC)**. Enter the appropriate 1-character, alphabetic code from the list below to identify the specific type of processing action required.

1 A—initial entry of data to report a transaction.

2 C—replacement of data for a transaction. An initial entry cannot be replaced after the close of a processing period.

3 D—deletion of a transaction. An initial entry cannot be deleted after the close of a processing period.

(b) **Column 17**. Make no entry.

(c) **Column 18, Action Code (ACT CODE)**. Code letter P is preprinted on the form to identify in-place transfers between projects.

(4) Header Information—Data Record Number 1.

(a) **Column 19, Data Code**. Code number 1 is preprinted on the form.

(b) **Columns 20–21, Number of Lines**. Enter numeric digits (01-99) to indicate the total number of detail information lines pertaining to a specific transaction.

(c) **Columns 22–23**. Make no entry.

(d) **Columns 24-33, Sealed Source Serial Number**. Make no entry.

(e) **Columns 34–50, Contract/Identification Number**. Use is optional.

(f) **Columns 51-69**. Make no entry.

(g) **Columns 70–77, Action Date**. Enter the date the activity occurs. In the event of a correction, the date to be entered here is the date of the activity and not the date of the original transaction. The numbers representing the month should be entered in the first two columns, the day of the month in the next two columns, and the year in the final four columns. For example, January 5, 2000, would be recorded as:

MO		DAY		YEAR			
0	1	3	1	2	0	0	0

(h) **Columns 78–80**. Make no entry.

(5) Detail Information—Data Record Number 2.

(a) **Column 19, Data Code**. Code number 2 is preprinted on the form.

(b) **Columns 20–21, Line Number**. Enter a sequential number (01-99) for one transaction to identify a discrete line.

(c) **Columns 22–31, from Project Number**. Enter the project number from which the material is being transferred, left justified.

(d) **Columns 32–35, From Composition Code**. Enter the numeric code that identifies the chemical and/or physical form of the material under the project number from which it is being transferred, left justified. A complete set of composition codes is listed in the DOE inventory profile (NMMSS Report I-17) which consists of available nuclear material composition codes and descriptions. When reporting unirradiated enriched uranium or plutonium scrap material, enter the appropriate ANSI alphanumeric code (see ANSI N15.1-1970 and N15.10-1987).

(e) **Columns 36–45, To Project Number**. Enter the project number to which the material is being transferred, left justified.

(f) **Columns 46–49, To Composition Code**. Enter the numeric code that identifies the chemical and/or physical form of the material under the project number from which it is being transferred, left justified. Composition codes and descriptions are listed in the DOE inventory profile (NMMSS Report I-17). When reporting unirradiated enriched uranium or plutonium scrap material, enter the appropriate ANSI alphanumeric code (see ANSI N15.1-1970 and N15.10-1987).

(g) **Columns 50–51, Material Type**. Enter the appropriate two-digit numeric code to identify the type of nuclear material being reported. See Table XV-1.

(h) **Column 52, Owner Code**. Code letter G is preprinted on the form.

(i) **Columns 53–63, Element Weight**. Enter the metric weight of the contained nuclear material.

1 Enter decimal units, when required, in columns 62 and/or 63 (segregated by broken lines).

2 To show negative numeric data, enter a minus sign in the column preceding the first digit. In instances where negative data are shown in whole units or tenths of a unit, zeros must be entered in the remaining decimal places with a minus sign in the column preceding the first digit.

(j) **Columns 64–69, Weight Percent Isotope**. For each line, enter the weight percent of the isotope U-235, Li-6, Pu-240, Pu-242, or Pu-238 reported to not more than four decimal places. For U-233, enter the parts per million of U-232 right justified to column 69.

(k) **Columns 70–80, Isotope Weight**. Enter the metric weight of accountable isotopes using instructions for rounding off data in paragraph 11a(5) above.

1 Enter decimal units, when required, in columns 79 and/or 80 (segregated on DOE F DP-749 by broken lines).

2 To show negative numeric data, enter a minus sign in the column preceding the first digit. In instances where negative data are shown in whole units or tenths of a unit, zero(s) must be entered in the remaining decimal places(s) with a minus sign in the column preceding the first digit.

12. NONPHYSICAL TRANSFER OF NUCLEAR MATERIAL. DOE/NRC F 741 or electronic equivalent will be used to record a change in ownership or financial responsibility.

13. OTHER TYPES OF RECEIPTS AND REMOVALS.

a. Various other types of receipts and removals including, but not limited to, production, transfers to and from other materials, sales, decay, losses, inventory changes, and inventory differences (see Chapter XIII), will be documented using DOE/NRC F 741 or electronic equivalent.

b. Such other types of receipt and removal data involving reportable quantities will be documented and reported consistent with the use of inventory change codes specified in Tables XV-13, XV-14, and XV-21.

14. SPECIAL REQUIREMENTS.

a. Authority to transfer material. Each facility must maintain documentation of authorities and responsibilities for MC&A functions, including the process and authorized signatures required to transfer nuclear material.

b. Verification of authority. The shipper must verify that the receiver is authorized to receive the amount and type of material that is to be shipped. This is done in consultation with the NMMSS operator.

c. Notifying Receiver of Nuclear Material Shipments.

(1) Each shipper will be responsible for advising and obtaining authorization from the intended receiver of proposed shipments of nuclear material and for providing all pertinent advance information.

(2) Specific notification requirements applicable to individual facilities are contained in the RIS Directory.

d. Reporting of Nuclear Material in Transit for Domestic Shipments.

(1) Material in transit at the end of a reporting period will be entered into the intended receiver's inventory.

(2) A facility making a shipment of nuclear material and/or initiating a DOE/NRC F 741 during the last 5 calendar days of a month will, on the day of shipment, provide the intended receiver with the following information to facilitate the reporting of material balance, transaction, and inventory data.

(a) Transfer series (shipper's RIS, receiver's RIS, and transaction number).

(b) Material types. See Table XV-1.

(c) Total element weights and (if warranted) isotope weights, weight percent and/or parts per million (based on estimates if necessary). See Table XV-1.

(d) Project number (for owner code G material).

(e) Obligation tracking data, blocks 17 through 21.

(f) Number of items.

(g) Composition codes.

(h) Owner codes.

(i) Date of shipment.

(3) The information specified above will be transmitted to the receiver by telephone on the agreed day of shipment, with confirmation by facsimile, Internet, or other electronic means (e.g., SIMEX).

(4) This requirement may be satisfied by the timely distribution of DOE/NRC F 741 data via appropriate telecommunications systems when both the shipper and receiver possess such capabilities.

e. Delayed Receiver Measurements. In cases where the receiver can not determine independent measured values for a shipment within 10 calendar days of receipt of the shipment, and there is no agreement in place whereby the receiver can accept shipper's values, the receiver will confirm receipt of the material with either an action code N, U, or S. (see Table XV-11 and the footnotes to Table XV-11 for additional information).

f. Mixtures of U-233 and U-235. For the case where reportable quantities of U-233 and U-235 are mixed together, a transaction on a DOE/NRC F 741 must contain two lines and be reported as follows.

(1) Line one will be reported with MT 20. The element weight will be the total uranium weight. The isotope weight will be the isotopic weight of U-235.

(2) Line two will be reported with MT 70. The element weight will be the total uranium weight. The isotope weight will be the isotopic weight of U-233.

15. AMENDMENTS OR ADJUSTMENTS TO PREVIOUSLY ISSUED DOE/NRC F 741.

a. When one party makes an adjustment to a transaction, field elements or site offices will ensure that contractors under their jurisdiction will document the adjustment on a DOE/NRC F 741 or electronic equivalent. (See Attachment 2.)

b. For specific instructions regarding corrections or adjustments, see Chapters IV and V for shippers and receivers and guidance regarding back reference numbers.

c. Contractors must transmit the completed form to the other party to the transaction within 1 workday after obtaining the adjustment data.

CHAPTER IV. NUCLEAR MATERIAL TRANSACTION REPORTING—SHIPPER

The instructions that follow provide specific guidance in the preparation of the DOE/NRC F 741 or the electronic equivalent. The file formats for reporting electronically are maintained by the NMMSS operator and can be provided upon request.

1. SHIPPER'S DATA. The shipper of the material will complete the shipper's portion of DOE/NRC F 741 by completing the numbered blocks as follows:

   a. **Block 1, Shipper's RIS**. Enters the shipper's facility RIS his/her facility, normally a 3-character field. Under some circumstances, a 4-character RIS will be entered (e.g. appending a letter to the end of a 3-character RIS to denote discharge of material to air or ground). See subsequent Chapters for special instructions for importers and exporters of nuclear materials. This block must be completed for the following types of transactions.

      (1) Transfers between facilities.

      (2) Transfers between RISs within a facility.

      (3) Transfers between facilities and DoD.

      (4) Transfers between domestic and foreign facilities.

      (5) Loan/lease, sale or donation.

      (6) One-party transactions (e.g., transactions with an M action code)

      (7) Corrections to the above transactions.

   b. **Block 2, Receiver's RIS**. Enter the receiver's RIS, normally 3-characters when the transaction is a transfer of material from the shipper to another facility. Care should be taken to ensure that the receiving facility's RIS is reported and not the RIS for the agent handling the shipment. The shipper or originator enters its facility's RIS in this block for a one-party transaction (e.g., a transaction with an M action code). This field is completed for the types of transactions listed in paragraphs 1a(1) through 1a(7) above. See Chapter IX for special instructions for importers and exporters of nuclear materials.

   c. **Block 3, Transaction Number**. Enter a consecutive number for the same shipper-receiver combination and ensures that a number is not skipped in the series or duplicated. (NOTE: An exception to the consecutive numbering requirement is allowed when a facility has pre-assigned or reserved numbers for programmatic needs, but the shipment does not subsequently occur. This applies

to both physical and nonphysical transfers of material.) For one-party transactions, it is desirable that the shipper enter the appropriate journal entry number to identify the transaction as it occurs (e.g., 000105), the first two digits indicating the year, the next two digits indicating the month (i.e., 01 through 12), and the last two digits identifying the specific transaction in the month. (The example above is for transaction 5 for January of 2000.) Do not prefix or suffix the transfer series number. For one-party or in-place transactions between projects or uranium enrichment contracts, an alphanumeric number may be used when necessary to maintain uniqueness.

d. **Block 4, Correction Number**. This block is used to correct or adjust a previously issued DOE/NRC F 741. In preparing the corrected copy, the shipper or receiver will enter in blocks 1, 2, and 3, the same shipper RIS, receiver RIS, and transaction number (transfer series) used in the original report, and then enter in block 4 a consecutive correction number, beginning with 1 (numeral one). The corrected copy will clearly identify the items being corrected. The party making the adjustment will notify the other party to the transaction that an adjustment is necessary and follow up by issuing a corrected DOE/NRC F 741. The correction number is a 1-character field. An alpha correction number may be used by a facility when the correction does not affect the other facility. The shipper and/or receiver must enter the date the adjustment is entered in the facility records in block 22b or 22e, as appropriate. The shipper and receiver will distribute the corrected copy in accordance with the distribution pattern for the original DOE/NRC F 741. This field must be completed when:

(1) A shipper or receiver issues a corrected DOE/NRC F 741 to adjust data previously reported to the NMMSS;

(2) A correction affects another facility. A numeric character is required, action code C for the shipper and action code D for the receiver [also see blocks 26a and 27a for further guidance (back reference line number)];

(a) For each detail line in block 26 or 27 being corrected, two lines must appear on the corrected copy one with the data originally submitted and the other with the correct data. The line containing the original data must show the number of items, element weight, isotope weight, and limits of error as negative quantities. (For correcting lines that were originally negative, add a positive quantity.) The corrected line must show current quantities in these data fields.

(b) For each detail line in block 26 or 27 being deleted, the original line must be repeated, with the number of items, element weight, isotope weight, and limits of error shown as negated quantities. (For deleting lines that were originally negative, add a positive quantity.)

(3) Either the shipper or receiver makes an adjustment. The other party to the transaction must either accept the adjustment or acknowledge that an adjustment has been made;

(4) It is necessary to adjust or correct any data element in an M action code (one-party) or I action code (inventory difference explanation data) transaction reported in a previous period. Either a numeric or an alphabetic character may be used;

(5) Scrap material is recovered or remeasured, resulting in a more accurate total value for the amount of nuclear material in the original shipments, the DOE/NRC F 741 for the original shipments should be corrected by prorating the total amount of the correction according to the amounts of the original shipments. When this method is determined to be impracticable, e.g., for reprocessing campaigns, measurements on several shipments of material recovered simultaneously may be reported as a correction to a single document with additional details provided to the other party.

e. **Block 5, Processing Code**. Enter the appropriate 1-character, alphabetic code to identify the specific type of processing action required.

(1) A—initial entry of data.

(2) C—replacement of data. An entire data set may be replaced at any time prior to the close of the processing period in which the initial entry was made with the concurrence of the other party to the transaction.

(3) D—deletion of data. Data may be deleted at any time prior to the close of the processing period in which the initial entry was made.

f. **Block 6, Action Code**. Enter a code letter from the list below which describes the shipper's purpose in issuing the DOE/NRC F 741. The action code field is a 1-character alpha field.

(1) A—shipper's original data (requires completion of block 22a, action date of shipment).

(2) C—shipper's adjustment or acknowledgment of receiver's adjustment (requires completion of block 22b, action date of shipper's correction).

(3) I— inventory difference explanation data.

(4) M—one-party transaction, (e.g., an onsite gain or loss) reported on DOE/NRC F 741 (or electronic equivalent), and requires completion of block 22a, 20b, 22c, or 22e.

(5) R—a one-party transaction to remove the WR obligation on material.

(6) X—a shipper's side of an obligation exchange.

g. **Block 7**. Enter the number of pages if the submission is classified as Secret. NOTE: The block is reserved for paper copy submissions only.

h. **Block 8, Shipper**. No data required. This information is not captured in the NMMSS but is for documentation purposes or desired by one or more users of the transaction information.

(1) **Block 8a.** Enter the name and address of the shipper.

(2) **Block 8b**. Enter the appropriate possession license number if the shipper is a licensee. (Do not enter an export/import license number in this block.)

(3) **Block 8c, Attention**. Enter the name of a specific individual to be contacted concerning the shipment.

(4) **Block 8d**, **Telephone**. Enter the telephone number of the individual identified in block 8c.

i. **Block 9, Receiver**. No data required. This information is not captured in the NMMSS, but is for documentation purposes or desired by one or more users of the transaction information.

(1) **Block 9a**. Enter the name and address of the receiver.

(2) **Block 9b, License Number**. Enter the receiver's possession license number if the receiver is a licensee. (Do not enter an export/import license number in this block.)

(3) **Block 9c.** Attention. Enter the name of the individual designated by the receiver to be contacted concerning receipt of the shipment.

(4) **Block 9d, Telephone**. The shipper enters the telephone number of the individual identified in block 9c.

j. **Block 10, Number of Data Lines**. Enter the total number of detail information lines supplied in block 26 for the shipper's transaction data. The total number of data lines should be between 01 and 99.

k. **Block 11, Nature of Transaction**.

(1) This block is to be completed for DOE/NNSA-owned material under lease or loan agreements, material sold or donated by or to DOE/NNSA. See Table XV-12 for TI codes.

(2) If applicable, enter the appropriate code from the list in Table XV-12.

(3) This list is not applicable to one-party transactions.

(4) This block is not to be completed for transfers of DOE/NNSA-owned contract nuclear material within or between DOE/NNSA programs, transfers of material owned by other U.S. Government agencies, transfers of privately owned material, or transfers to DOE/NNSA under 42 U.S.C. 2121(b) or (c), as amended.

l. **Block 12, For Account**.

(1) The shipper completes block 12 if the material is either DOE/NNSA-owned leased/loaned material or DOE/NNSA-owned contract material being transferred to a licensee or foreign entity, if the shipment represents a sale or donation of privately owned material to DOE/NNSA, or if the field element having programmatic responsibility for the material being transferred is different from both the shipper's and receiver's field elements or site offices.

(2) Enter the address of the facility or entity having lease or loan financial responsibility for the material in block 12a and the RIS in block 12b.

(3) For shipments by DoD, under 42 U.S.C. 2121(b) with the exception of transfers of Navy cores and associated items, the initiator of the DOE/NRC F 741 enters the appropriate RIS for the DOE/NNSA shipping point reported in block 12a. For transfers of Navy cores and associated items from DoD to DOE/NNSA, under 42 U.S.C. 2121(b) the RIS QZD will be entered in block 12b.

m. **Block 13, To Account**.

(1) The shipper completes this block if the material is either DOE/NNSA-owned leased/loaned material or DOE/NNSA-owned contract material being transferred to a licensee or foreign entity, if the shipment represents a sale or donation of privately owned material to DOE/NNSA, or if the field element or site office having programmatic responsibility for the material being transferred is different from both the shipper's and receiver's field elements or site offices.

(2) Enter the address of the facility or entity having lease or loan financial responsibility for the material in block 13a and the RIS in block 13b.

(3) For shipments to DoD, under 42 U.S.C. 2121(b) (with the exception of transfers of Navy cores and associated items), the initiator of DOE/NRC F 741 enters the appropriate RIS for the DoD first destination point reported. For transfers of Navy cores and associated items from DOE/NNSA to DoD under 42 U.S.C. 2121(b) the RIS QZD will be entered in block 13b.

n. **Block 14, Transfer Authority—Contract, Nuclear Material Draft or Order Number.**

(1) Enter transfer authority for DOE/NNSA-owned materials as may be appropriate, e.g., DOE/NNSA contract or usage agreement number, loan/lease agreement number, draft number, SNM order number, purchase order number, letter of authorization, and so forth. Block 14 data is not required for domestic shipments.

(2) If the shipment is to a foreign country, enter the DOE/NNSA foreign contract number if applicable.

(3) The shipper will ensure that it has appropriate authorization and approval to ship the material to the receiver before its movement.

(4) An entry is optional otherwise, and if not one of the cited cases, the block may be used for local purposes.

o. **Block 15, Export/Import Information**.

(1) Make no entry when reporting the following.

(a) One-party transactions (i.e., action code M).

(b) Transfers that reflect change in ownership or financial responsibility (i.e., all nonphysical transfers of nuclear material other than project transfers).

(c) Transfers between two RISs at the same location.

(2) **Block 15. Export or Import Transfers, License Number**. For all export/import transfers, the shipper or originator enters the following:

(a) Specific NRC export/import license number if shipping arrangements are handled by an agent who is required to obtain an

NRC license to export/import. If more than one export/import license is applicable to a transfer, a separate DOE/NRC F 741 must be prepared for each license.

(b) GEN-LIC, if the transfer is authorized under a general license.

(c) LIC-EXEMPT, if the transfer is exempt from licensing.

(d) Authorizing shipper's export declaration (SED) number if applicable. Field elements or site offices will assign and monitor SED numbers. The SED number will correspond with the foreign contract number in block 14.

(3) For further instructions for transfers of nuclear material between the U.S. and foreign nations, foreign regional organizations, or supranational organizations, see Chapter VII and *INMTS Data Entry Procedures* which are maintained by the Office of International Safeguards.

p. **Block 16, Material Type and Description**. This information is not captured in the NMMSS but is for documentation purposes or is desired by one or more users of the transaction information.

q. **Block 17, Obligations Accounting, Line Number**. Enter sequential line number. (See also Chapter VIII.)

r. **Block 18, Obligations Accounting, Country of Obligation**. Enter the two-character country or entity designation from Table XV-17 related to the line number entered in block 17. (See also Chapter VIII.)

s. **Block 19, Obligations Accounting, Material Type**. Enter the 2-character MT to which the obligation is attached. Refer to Table XV-18. The only MTs to be reported are 10, 20, 50, 70, 81, and 88. (See also Chapter VIII.)

t. **Block 20, Obligations Accounting, Obligated Element Weight**. Enter the element weight of the amount obligated. (See also Chapter VIII.)

u. **Block 21, Obligations Accounting, Obligated Isotope Weight** (for Enriched Uranium (in U-235 and or U-233) only). Enter the isotope weight of the amount obligated to the nearest gram. (See also Chapter VIII.)

v. **Block 22, Action Date**. The action date for a transaction is entered in one of the blocks below. Enter numerical date (MMDDYYYY).

(1) **Block 22a, Shipment**. Enter the date of the transaction (i.e., date of physical or nonphysical transfer of material). (See Chapter VII for special instructions for importers or exporters of nuclear materials.)

(2) **Block 22b, Shipper's Correction**. When either shipper's or receiver's data on a previously issued DOE/NRC F 741 is adjusted, the shipper enters either the date of shipper's adjustment or acknowledgment of receiver's adjustment.

w. **Block 23, Miscellaneous Data**. See instructions for shipper.

(1) **Block 23a, Miscellaneous**. This information is not captured in the NMMSS but is for documentation purposes or desired by one or more users of the transaction information.

(2) **Block 23b, Concise Note Attached** (DOE/NRC F 740M). This information is captured in NMMSS. Facilities engaged in the import and/or export of nuclear materials (see Chapter VII) and facilities selected under the U.S./IAEA Safeguards Agreement (see Chapter IX) may prepare a concise note to report additional information. The shipper places a code letter X in the 1-character field to indicate that a concise note is attached, if applicable. See Chapter VII for special instructions for importers and exporters of nuclear materials.

(3) **Block 23c**. This information is captured in NMMSS. U.S. importers and/or exporters of nuclear material will use this field only if the other party to the transaction is the United Kingdom. Check the appropriate box to identify the specific type of processing action required (See Chapter VII).

x. **Block 24, Total Gross Weight**. Enter the total gross weight of the shipment in kilograms if the transfer is between physically separated facilities. For transfers of nuclear material to or from contractor waste management sites, completion of this block is optional.

y. **Block 25, Total Volume**. The shipper must enter the total volume, in cubic meters, if the transfer is to a DOE/NNSA or NRC licensed waste management site, otherwise no entry is required.

z. **Block 26, Shipper's Data**.

(1) **Block 26a, Back Reference Number**.

(a) This field is used to reference previously reported data for change purposes.

(b) The field is comprised of a change digit and a back reference line number.

(c) This field is required for corrections with the following:

1 Action code C.

2 Action codes M and I when reporting adjustments.

(d) Both the back reference change digit and back reference line number must be reported. For further guidance, contact the NMMSS operator.

(e) The back reference change digit represents the change digit of the document being corrected for a nullifying entry and the change digit of the document now being completed for a correcting entry. For further guidance, contact the NMMSS operator.

(f) The back reference line number represents the line number being corrected for a nullifying entry and the line number of the corresponding nullifying line for a correcting entry. For further guidance, contact the NMMSS operator.

(2) **Block 26b, Line Number**. Enter a sequential number (e.g., 01 through 99 for each transaction) to identify a discrete line. The total number of discrete lines must agree with the number shown in block 10. For paper submission, if more lines of data are to be reported than can be accommodated on one page, prepare an additional DOE/NRC F 741.

(3) **Block 26c, Type of Inventory Change**[1]. Enter from Table XV-13 or XV-14 the two-digit code. For a full description of each change code see the corresponding line explanations in Chapter XI, Material Balance Reporting. Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter IX. For shipments to burial sites, see Chapter II.

(4) **Block 26d, Identification** (Batch Name). Refer to Chapter XVII for the definition of batch. Facilities engaged in the import and/or export of nuclear materials should see Chapter VII for additional requirements; facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter IX for additional requirements.

(a) If this block is not used for import/export or IAEA reporting purposes, other data may be entered.

[1] Also applicable to single party/onsite transactions or when one party does not have a RIS.

(b) An entry is required on import or export transactions. Importers must use the batch name used by the shipper.

(c) Batch name is limited to 16 characters with the right hand eight characters unique to the reporting facility for the duration of the material balance period in which reported. Uniqueness of batch name within the RIS must be maintained. However, the receiver must use the same batch name used by the shipper. If the receipt of material results in a duplicate of an existing batch name, a subsequent internal transaction must be created to change one of the duplicate batch names.

(5) **Block 26e, Number of Items**. Enter the number of similar items (e.g., cylinders, packs, drums, bottles, tank vessels) to which the line of data pertains.

(a) When reporting fuel pins, rods, or plates, report the number of separate fuel pins, rods, or plates involved.

(b) When reporting fuel assemblies, report the number of complete assemblies represented by the line entry.

(c) For transfers of bulk material in a single container, enter the number 1. No entry is required when reporting transactions involving RISs assigned to facilities on the same site (i.e., paired RISs). Leave blank if an M action code is used.

(6) **Block 26f, Project Number**. Project numbers are structured upon the DOE/NNSA budget and reporting classification codes, and identify the Headquarters and field elements or site offices having programmatic responsibility for each project. Indices of current project identifications are maintained and issued annually (NMMSS Report T-141) to organizations engaged in DOE/NNSA production and research programs. Project numbers are required for all G owner code transactions with the following specifications.

(a) If the material is loan/lease material, the project number is "loan/lease."

(b) If the shipment is from a holding area or waste facility (e.g., V RIS), the project number is "other."

(c) If the shipment is from non-DOE/NNSA government owned, the project number is "other."

(d) All export/import transactions involving DOE/NNSA-owned material require the project number J50000000G on the foreign entity's side of the data indicating that the material, though located outside the U.S., will remain DOE/NNSA-owned.

(7) **Block 26g, Material Type**. Enter one of the numeric codes from the list of MTs in Table XV-2 to identify the nuclear material involved in the transaction. Facilities engaged in the import and/or export of nuclear materials should see Chapter VII for special instructions.

(8) **Block 26h, Composition/Facility Code**. Enter the code that identifies the physical and/or chemical form of the nuclear material at the time the transaction occurs. A complete set of composition codes, which consists of available nuclear material composition codes and descriptions, may be obtained from the NMMSS operator (referred to as Composition of Ending Inventory—COEI codes).

(a) For reporting unirradiated uranium (MTs 10, 20, 81) or plutonium (MTs 40, 50, 83) scrap material, use the ANSI 3-character alphanumeric codes (ANSI N15.1-1970 and N15.10-1987).

(b) No entry is required for inventory difference or rounding bias data (e.g., inventory change code 65 or 77 entries).

(c) Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter IX.

(9) **Block 26i, Owner Code**. Enter one of the 1-character alphabetic codes from Table XV-3 to identify the material ownership at the time the shipment is made. If the ownership of material on inventory is changed, a transaction must be submitted to the NMMSS reporting the change. The change is reported by an A–M transaction (in-place transfer).

(10) **Block 26j, Key Measurement Point**. Required only for facilities selected under the U.S./IAEA Safeguards Agreement; see Chapter IX, if applicable.

(11) **Block 26k, Measurement Identification**. If selected under the U.S./IAEA Safeguards Agreement (see Chapter IX), report the following data:

(a) Measurement basis.

(b) Other measurement point.

(c) Measurement method.

(12) **Block 26l, Gross Weight**. Enter the gross weight of the line entry in rounded kilograms, i.e., weight of material plus packaging and container weight. An approximate or estimated gross weight figure is acceptable.

(13) **Block 26m, Net Weight**. Enter the net weight of the line entry in the reportable units, i.e., weight of material excluding packaging and container weight. An approximate or estimated net weight figure is acceptable.

(14) **Block 26n, Element Weight**. For each line, enter the metric weight of the contained nuclear material as prescribed in Table XV-1. (See Chapter II, paragraph 6, for rounding policy.)

(15) **Block 26o, Element Limit of Error**. For transactions involving SNM or tritium, measurement uncertainties are to be entered as weight quantities in accordance with the established reporting unit for the MT. For detailed requirements, see DOE M 474.1-1B.

(16) **Block 26p, Weight % Isotope**. For each line, enter the weight percent of the isotopes U-235, Li-6, Pu-240, Pu-242, and Pu-238, as applicable, to not more than four decimal places.

(a) For U-233, enter the parts per million of U-232 in whole numbers.

(b) When reporting fission and transmutation, inventory difference or rounding bias for enriched uranium only; enter the approximate original weight percent of U-235 of the material with which the transaction is associated.

(c) When reporting transactions involving more than one assay range of one or more materials, data pertaining to each assay range of a material must be entered on a separate line.

(17) **Block 26q, Isotope Weight**. For each line, enter the metric weight of accountable isotopes. See Chapter II, paragraph 6, for rounding policy.

(18) **Block 26r, Isotope Limit of Error**. For transactions involving SNM or tritium, measurement uncertainties are to be entered as weight quantities in accordance with the established reporting unit for the MT. For detailed requirements, see DOE M 474.1-1A.

(19) **Block 24s, Signature of Authorized Official and Date Signed**. When submitting the data as paper copy the following apply.

(a) The shipper's authorized representative must sign the DOE/NRC F 741 and enter the date signed.

(b) For facilities that use computer-linked telecommunications systems in the transfer of data, the signature requirement is waived.

(c) For both imports and exports, the requirement to sign the non-DOE/NNSA portion of a DOE/NRC F 741 only verifies that the individual providing the information is authorized to do so. It was never, nor is it now, intended that a signature on the non-DOE/NNSA portion indicates an assumed responsibility for proper shipment or receipt of materials.

(d) If facilities wish, they may provide a disclaimer with the signature on the non-DOE/NNSA portion to indicate that they are only signing as authorized transmitters of the data to the NMMSS.

aa. **Block 25, Receiver's Data**. Shipper makes no entry.

CHAPTER V. NUCLEAR MATERIAL TRANSACTION REPORTING—RECEIVER

1. RECEIVER'S DATA. The receiver will complete the receiver's portion of the form by making entries in the numbered blocks as follows.

   a. For blocks 1 through 5 follow shipper's data instructions.

   b. **Block 6, Action Code**. Enter the alphabetic code from the list in Chapter XV which describes the receiver's purpose in issuing the DOE/NRC F 741. The action code is a 1-character alpha field.

      (1) B—identifies receiver's data accepting shipper's weights and requires completion of block 22c. This action code is not to be used if the receiver intends to make delayed measurements.

      (2) D—identifies receiver's adjustment or acknowledgment of shipper's adjustment and requires completion of block 22e.

      (3) E—identifies receiver's independent measurement or determination (including rounding) and requires completion of block 22d.

      (4) J—identifies receiver's interim reporting of project receipts of DOE/NNSA production or research materials that are in transit at the end of the month or that have been received but not reported. A transaction with action code J must be followed with action code B, E, or S.

      (5) M—identifies one-party transactions, (e.g., an onsite gain or loss) reported on DOE/NRC F 741 (or electronic equivalent), and requires completion of block 22a, 22b, 22c, or 22e.

      (6) N—identifies known delay for independent measurements of at least 10 days but for less than 30 days. A transaction with action code N must be followed by an action code of B, E, or S.

      (7) U—identifies known delay for independent measurements of at least 30 days. A transaction with action code U must be followed by an action code of B, E, or S.

      (8) S—identifies receiver's data accepting shipper's weights under safeguards closure arrangement and requires completion of block 22c. (Use restricted to DOE/NNSA contractor sites where an approved shipper-receiver agreement is in effect.)

(9) T—identifies contested weights.

(10) Y—identifies the receiver's side of an obligation exchange.

c. **Block 22, Action Date**. The action date for a transaction is entered in one of the blocks below. Enter numerical date (MMDDYYYY).

(1) **Block 22c, Receipt**. Enter the date the material is received if the receiver is accepting shipper's values without making independent measurements.

(a) For safeguards closures, enter the date the safeguards closure was performed.

(b) The receiver also should use this block to report the date of receipt of material involved in nonphysical transfers, one-party transactions (i.e., transactions with M action code), project number changes and transactions in which weights are contested. See Chapter VII for special instructions for importers or exporters of nuclear materials.

(2) **Block 22d, Receiver's Measurement**. Enter the date that independent measurements are performed.

(3) **Block 22e, Receiver's Correction**. When either the shipper's or the receiver's data on a previously issued DOE/NRC F 741 is adjusted, the receiver enters the date of the receiver's adjustment or acknowledgment of shipper's adjustment.

d. **Block 23, Miscellaneous Data**. See Chapter IV, shipper's instructions.

e. **Block 27, Receiver's Data**.

(1) **Block 27a, Back Reference Number**. See Chapter IV, shipper's instructions. Also, this field is required for corrections with action codes D or M, and I when an adjustment is made.

(2) **Block 27b, Line Number**. See Chapter IV, shipper's instructions.

(3) **Block 27c, Type of Inventory Change**. See Chapter IV, shipper's instructions.

(4) **Block 27d, Identification (Batch Name)**. See Chapter IV, shipper's instructions.

(5) **Block 27e, Number of Items**. See Chapter IV, shipper's instructions.

(6) **Block 27f, Project Number**. See Chapter IV, shipper's instructions.

(7) **Block 27g, Material Type**. See Chapter IV, shipper's instructions.

(8) **Block 27h, Composition/Facility Code**. See Chapter IV, shipper's instructions.

(9) **Block 27i, Owner Code**. See Chapter IV, shipper's instructions.

(10) **Block 27j, Key Measurement Poin**t. See Chapter IV, shipper's instructions.

(11) **Block 27k, Measurement Identification**. See Chapter IV, shipper's instructions.

(12) **Block 27l, Gross Weight**. See Chapter IV, shipper's instructions.

(13) **Block 27m, Net Weight**. See Chapter IV, shipper's instructions.

(14) **Block 27n, Element Weight**. See Chapter IV, shipper's instructions.

(15) **Block 27o, Element Limit of Error**. See Chapter IV, shipper's instructions.

(16) **Block 27p, Weight % Isotope**. See Chapter IV, shipper's instructions.

(17) **Block 27q, Isotope Weight**. See Chapter IV, shipper's instructions.

(18) **Block 27r, Isotope Limit of Error**. See Chapter IV, shipper's instructions.

(19) **Block 27s, Signature of Authorized Official and Date Signed**. See Chapter IV, shipper's instructions.

CHAPTER VI. NUCLEAR MATERIAL TRANSACTION REPORTING— DOE/NNSA TO DoD

1. FROM DOE/NNSA TO DoD.

   a. Weapons Transfers.

      (1) SNM in weapons will not be transferred to DoD under 42 U.S.C. §2121(b) until DOE/NNSA has received direction from the President.

      (2) Field elements or site offices are cautioned against transferring nuclear material to DoD, or authorizing contractor facilities to make such transfers, until the field element or site office has received prior written authorization for specific transfers. (See Attachment 2.)

      (3) A contractor facility that is the transferring organization is advised not to ship materials without having prior written authority from the field element or site office having jurisdiction for this purpose.

      (4) Both the field element or site office and the contractor facility will retain written authorization on file for audit purposes.

      (5) DoD is not required to have a license to possess nuclear material for the purposes identified above.

   b. Non-weapon Transfers.

      (1) In addition to the conditions identified in paragraph 1a, above, a non-weapon transfer of SNM to DoD under 42 U.S.C. §2121(b) requires the completion of DOE/NRC F 741.

      (2) With the exception of SNM transfers to the Naval Reactors program, authorization for non-weapon transfers of SNM to DoD under 42 U.S.C. §2121(b) will be obtained either from the program office responsible for the DOE/NNSA-DoD activity, or from the Defense Programs Administrator when there is no DOE/NNSA programmatic interface with DoD.

      (3) Authorization for SNM transfers to the Naval Reactors program will be obtained from the Deputy Assistant Secretary for Naval Reactors, NNSA.

   c. Transfer of Material in the Possession of Licensees to DoD. NRC is expected to advise all 42 U.S.C. §2131 license holders that whenever licensees are

required to deliver SNM to DoD, the licensee will determine from DoD whether the material is being requested by DoD under the conditions of either 42 U.S.C. §2131 or 42 U.S.C. §2121(b), as amended.

(1) Transfers of Material to DoD as Licensees Under 42 U.S.C. §2131. When delivery is to be made, the licensee will follow the normal procedures that NRC has in effect for transfers between licensees.

(2) Transfer of SNM to DoD Pursuant to 42 U.S.C. §2121(b).

(a) When delivery is to be made, the licensee will advise the DoD installation to contact the DOE Headquarters, Office of Plutonium, Uranium and Special Materials Inventory for the purpose of obtaining a determination of which field element or site office is to maintain liaison with DoD and the licensee concerning the disposition of the material.

(b) The responsible program office or the Defense Programs Administrator, as appropriate, in coordination with and through the appropriate Headquarters elements, will issue a letter to the DoD installation, with copies to the licensee and all appropriate DOE/NNSA personnel, approving the transfer to DoD and designating the appropriate field element or site office as liaison office in handling the transfer to DoD. (See Attachment 2.)

(c) When the licensee is ready to deliver the product ordered by the DoD or DoD contractor the field element or site office designated as liaison for the licensee will advise the licensee to initiate a DOE/NRC F 741 in accordance with the preparation and distribution instructions that apply to licensees, showing the field element or site office as the RIS receiving the nuclear material in block 2. (See Attachment 2.)

(d) Further, if the field element or site office is other than the NNSA Service Center (RIS AAA), a copy of the shipping document will be sent to AAA and so reflected in the "Distribution of Copies" block. The designated field element or site office will also ensure the following. (See Attachment 2.)

1 Nature of transaction (TI) code D is entered in block 11 to indicate material is being returned to DOE/NNSA.

2 The licensee is shown as the shipper in block 8, and as the entity having financial responsibility for the material in block 12.

3 The designated field element or site office is shown as the receiver in block 9, with a parenthetical entry giving the name and address of the DoD organizational unit or contractor to whom physical delivery is made.

4 DOE/NNSA and the designated field element or site office are shown as assuming financial responsibility for the material in block 13.

5 The letter from the responsible program office or the Defense Programs Administrator, as appropriate, is referenced in block 23.

(e) From the data on the DOE/NRC F 741 prepared by the licensee, the designated field element or site office will prepare a DOE/NRC F 741 from DOE/NNSA to DoD using one of the following RISs for the receiving DoD installation. (See Attachment 2.)

1 QZA for Air Force,

2 QZB for Army, or

3 QZD for Navy.

(f) After DoD has received the material, the NMR of the designated field element or site office will sign as receiver in block 27s of the licensee's DOE/NRC F 741 using the data furnished by DoD. (See Attachment 2.)

(g) The following statement will be entered in block 14 by the nuclear material representative of the field element or site office. (See Attachment 2.)

Acceptance of the material in its existing form is in the best interest of the U.S. Government.

(h) The NNSA Service Center will be provided a copy of the completed DOE/NRC F 741. The nuclear material transferred to DoD pursuant to 42 U.S.C. 2121(b) will not contain any foreign obligated material.

d. Other Nuclear Material Transfers.

(1) When nuclear material, other than SNM, is associated with weapons being transferred to DoD, the procedures described in paragraph 1a above, will be followed.

(2) When nuclear material other than SNM is not associated with weapons and is being transferred to DoD, the procedures and authorization necessary for making such transfers to licensees will apply. Therefore, DoD will obtain and possess the material in the capacity of a licensee under a licensee RIS.

e. Transfer Documents. All transfers to DoD will be documented on DOE/NRC F 741 in accordance with the instructions in this Manual.

(1) Preparation. Preparation of DOE/NRC F 741 will vary with the nature of the transfers, as indicated below.

(a) Transfer of Training Account Material. Complete instructions for such transfers are contained in Technical Manual, TP100-4, *Custody, Accountability, and Control of Nuclear Weapons and Nuclear Material*, published under the authority of the Secretaries of the Army, Navy, and Air Force for use by the Defense Special Weapons Agency and DOE/NNSA. Field elements or site offices that need this information should contact the NNSA Service Center.

(b) Transfer of War Reserve Stockpile Items Containing Nuclear Materials. Complete instructions for such transfers are contained in Section 3 of Technical Manual TP100-4.

(c) Other Transfers of SNM.

1 Transfers of nuclear materials contained in Navy cores and associated items are reflected in DoD memorandum inventory accounts maintained by the Pittsburgh Naval Reactors Office. The distribution of DOE/NRC F 741 for such transfers will be in accordance with the distribution list in Chapter III, appropriately modified to provide copies to the Pittsburgh Naval Reactors Office. See paragraph 2 below.

2 Other SNM Transfers under 42 U.S.C. §2121(b) are reflected in DoD memorandum inventory accounts maintained by the NNSA Service Center. The distribution of DOE/NRC F 741 for such transfers, excluding those described in paragraph 1a, above, will be in accordance with the distribution list in Chapter III, appropriately modified to provide copies to the NNSA Service Center as per paragraph 2 below.

2. DISTRIBUTION OF DOE/NRC F 741.

a. Distribution of DOE/NRC F 741 for transfers of weapon-related materials is shown in Technical Manuals TP100-1 and TP100-4.

b. Distribution of DOE/NRC F 741 for transfers of Navy cores and/or other SNM transfers is as follows.

(1) Copies 1, 2, 3, and 5 are forwarded to the receiver.

(2) Copy 4 is sent to the shipper's field element or site office.

(3) Copy 6 is forwarded, as appropriate, to either of the following.

U.S. Department of Energy
Manager, NNSA Service Center
P.O. Box 5400
Albuquerque, NM 87115
Attn: Director, Security & Nuclear Safeguards (RIS AAA)

OR

U.S. Department of Energy
Manager, Pittsburgh Naval Reactors Office
P.O. Box 109
West Mifflin, PA 15122-0109
Attn: PAA Nuclear Material Representative

(4) Copy 7 is retained by the shipper.

(5) The shipper will instruct the receiver to—

(a) complete block 27 on copies 1, 2, 3, and 5;

(b) return copy 1 to the shipper;

(c) retain copy 2 for filing;

(d) mail copy 3 to the shipper's field element or site office; and

(e) mail copy 5 to either the NNSA Service Center or the Pittsburgh Naval Reactors Office, as appropriate.

c. Other Transfers of Nuclear Material. All transfers of nuclear material under 42 U.S.C. §2121(b) will also be documented on DOE/NRC F 741. Distribution will be made as follows.

(1) Copies 1, 2, 3, and 5 are forwarded to the receiver.

(2) Copy 4 is sent to the shipper's field element or site office.

(3) Copy 6 is forwarded to—

Manager, NNSA Service Center
National Nuclear Security Administration—USDOE
P.O. Box 5400
Albuquerque, NM 87115
Attn: Director, Security and Nuclear Safeguards (RIS AAA)

(4) Copy 7 is retained by the shipper.

(5) The shipper will instruct the receiver to—

(a) complete block 27 on copies 1, 2, 3, and 5;

(b) return copy 1 to the shipper;

(c) retain copy 2 for filing;

(d) mail copy 3 to the shipper's field element or site office; and

(e) mail copy 5 to the address for the NNSA Service Center shown above.

3. MEMORANDUM INVENTORY ACCOUNTS.

a. The Pittsburgh Naval Reactors Office and the NNSA Service Center will maintain memorandum inventory accounts for all transfers under their purview identified in paragraphs 1 and 2 above. (See Attachment 2.)

b. The NNSA Service Center and the Pittsburgh Naval Reactors Office will maintain current inventory records that will provide the following information. (See Attachment 2.)

(1) All quantities shipped to DoD.

(2) All quantities returned to DOE/NNSA (based on the receiver's measured quantities).

(3) All quantities determined to have been consumed or lost.

(4) Inventory and loss data for quarterly reports of composition of ending inventory.

c. As of September 30 each year, the NNSA Service Center and the Pittsburgh Naval Reactors Office will forward transcripts of their memorandum accounts to the Director, Office of Nuclear Energy, Science and Technology, DOE Headquarters, for other than weapon-related inventories. (See Attachment 2.)

4. FROM DoD TO DOE/NNSA.

a. Transfer of training account material will be made by DoD as described in Technical Manual TP100-4, Section 3, for nuclear material transfers to U.S. DoD (RIS QZE) and Section 6 for transfers of SNM and source material to the training account (RIS QZC). The instructions prescribe the use of DoD Form 1348 to document the transfer.

b. Transfer of war reserve stockpile items containing nuclear materials will be made by DoD as described in Technical Manual TP100-4, Section 3, for nuclear material transfers to U.S. DoD (RIS QZE). The instructions prescribe the use of DoD Form 1348 to document the transfer.

c. Field elements or site offices having need for information referred to in paragraphs 4a and 4b should contact the NMR at RIS AAA. (See Attachment 2.)

d. Other than the transfers referred to above, DoD does not prescribe a form for the shipping DoD installation to document the transfer. However, for any such transfers, the receiving facility must provide DoD with appropriate acknowledgment of receipt, and ensure that DoD documentation of the transfer contains all essential information. In addition, the receiving facility is required to provide the NNSA Service Center or the Pittsburgh Naval Reactors Office with copies of any documentation of the transfer; i.e., receipt acknowledgment or DOE/NRC F 741, as appropriate. A receipted copy of such documents will be available at the field element or site office for audit purposes. The basic information which should be included on the transfer document is as follows.

(1) Date of shipment.

(2) Name and address of the shipper.

(3) Description of the nuclear materials (including information as to the purpose for which it was used).

(4) Type of material.

(5) If available, the quantity of material by element and isotope.

(6) Date of receipt.

(7) Receiver's name and address.

(8) Signature of the receiving facility's authorized representative.

e. Transfer Documents. All transfers of nuclear material from DoD will be documented on DOE/NRC F 741.

(1) Preparation. The receiver will prepare a DOE/NRC F 741 promptly, completing all appropriate blocks, with the exception of block 26, in accordance with the instructions in Chapter V.

(2) Distribution.

(a) One copy to the receiver's field element or site office.

(b) One copy to either the NNSA Service Center or the Pittsburgh Naval Reactors Office, as appropriate.

(c) One copy retained by the receiver.

5. PROHIBITION ON USE OF FOREIGN OBLIGATED MATERIAL. Material that has a foreign obligation attached under an Agreement for Cooperation in the Peaceful Uses of Nuclear Energy may not be shipped to or received by a facility with a Q RIS.

CHAPTER VII. NUCLEAR MATERIAL TRANSACTION REPORTING— U.S. AND FOREIGN NATIONS, FOREIGN REGIONAL ORGANIZATIONS, OR SUPRANATIONAL ORGANIZATIONS

1. INTRODUCTION. In accordance with the requirements of DOE O 474.1A and DOE M 474.1-1B, these instructions are provided for the preparation and distribution of DOE/NRC F 741 for transfers of nuclear material between the U.S. and foreign nations, foreign regional elements, or supranational organizations.

2. PREPARATION OF DOE/NRC F 741.

   a. License-exempt contractors who ship to or receive nuclear materials from foreign entities will prepare DOE/NRC F 741.

   b. Prior to the export/import of nuclear materials by license-exempt contractors under their jurisdiction, field elements or site offices should ensure that INMTS procedures for the transfer of nuclear materials to foreign entities are followed. For further information regarding INMTS, contact the NMMSS operator. The referenced procedures are designed to assist DOE/NNSA in accounting for and controlling the export/import of nuclear materials. If the imported or exported nuclear material has foreign obligations, see Chapter VIII for further instructions. For additional instructions, contact the cognizant field element or site office. (See Attachment 2.)

3. TRANSFERS TO A FOREIGN ENTITY.

   a. The shipper will ensure that appropriate authorization and approval to transfer the nuclear material has been obtained.

   b. It is important in preparing DOE/NRC F 741 that the entry in block 2 be the proper international nuclear facility code for the receiver's facility. (Refer to the NMMSS International Nuclear Facilities Codes Directory, which lists the names and corresponding RIS of international nuclear facilities identified to possess source and/or SNM.)

   c. The receiver's name and address, which are not necessarily the same as the name and address of the facility, will be entered in block 9a. This data is not captured by NMMSS.

   d. Transfers of material under a mutual defense agreement will be identified by entering QZF in block 2 of DOE/NRC F 741 for transfers to France or QZG for transfers to the United Kingdom.

e. Owner code G (U.S. Government owned) or J (other owned), as appropriate, will be entered in block 26i to reflect material ownership.

f. Facilities engaged in the import and/or export of nuclear materials also will follow the special instructions in this chapter and in Chapter VIII of this Manual. No entry is required in block 15 for transfers of material under a mutual defense agreement. Transfers under 42 U.S.C. §2121(c) involving defense activities, other than those for which responsibility has been specifically assigned by Headquarters, must be coordinated through the Manager, NNSA Service Center.

g. In addition to any other markings, transfers of nuclear material to the United Kingdom must be reported in block 23c.

h. Facilities engaged in the import and/or export of nuclear materials also will follow the special instructions in this chapter and in Chapter VIII of this Manual.

4. TRANSFERS FROM A FOREIGN ENTITY.

a. The receiver, in preparing DOE/NRC F 741, will enter in block 1 the proper RIS for the shipper's facility. In block 8a, enter the shipper's name and address, which are not necessarily the same as the name and address of the facility. This data is not captured by NMMSS.

b. Transfers of material under a mutual defense agreement will be identified by entering QZF in block 1 of DOE/NRC F 741 for transfers from France or QZG for transfers from the United Kingdom.

c. Owner code G or J, as appropriate, will be entered in block 27i to reflect material ownership.

d. No entry is required in block 15 for transfers of material under a mutual defense agreement. Transfers of material originally shipped under 42 U.S.C. §2121(c) involving defense activities, other than those for which responsibility has been specifically assigned by Headquarters, must be coordinated through the Manager, NNSA Service Center.

e. In addition to any other markings, transfers of nuclear material from the United Kingdom must be reported in block 23c.

f. Facilities engaged in the import and/or export of nuclear material will also follow the special instructions in this chapter and Chapter VIII of this Manual.

5. BATCH FORMATION AND NAMING.

a. For the import of material from a foreign nation or entity, use the shipper's batch identification. (See Chapter XVII for definition of batch.)

b. Reporting of inventory changes on DOE/NRC F 741 under the U.S./IAEA Safeguards Agreement is done at the batch level of detail; and under an agreement between the U.S. Government and the IAEA, imports and exports also will be reported at the batch level of detail.

c. Special instructions for importers and exporters are in paragraph 6 of this chapter and in Chapters VIII and IX of this Manual.

d. Data on a batch are contained on a single detail line of DOE/NRC F 741. All material in a single batch must have the same value for all of the following data elements.

(1) Type of inventory change (required under the U.S./IAEA Safeguards Agreement only).

(a) Batch name.

(b) Number of items.

(c) Composition/facility code.

(2) Key measurement point (required under the U.S./IAEA Safeguards Agreement only).

(3) Measurement identification code, i.e., measurement basis, other measurement point, and measurement method (required under the U.S./IAEA Safeguards Agreement only).

e. If the material in a single batch has multiple values for data elements, the data for the batch must be listed on two or more detail lines, with common data elements repeated. An example of a batch requiring more than one line would be irradiated fuel containing both uranium and plutonium. The data for such a batch would be listed using one line for uranium data and one line for plutonium data.

6. SPECIFIC INSTRUCTIONS FOR FACILITIES ENGAGED IN THE IMPORT AND/OR EXPORT OF NUCLEAR MATERIALS.

a. U.S. importers and/or exporters of nuclear materials are required to use DOE/NRC F 741 for documentation of all transactions. In addition, U.S. facilities

involved in importing or exporting are required to complete the portion of the DOE/NRC F 741 normally completed by the other facility involved in a transfer.

(1) U.S. importers and exporters will complete both the shipper's and the receiver's portion of the form.

(2) The required signing of the non-DOE/NNSA portion of a DOE/NRC F 741 will indicate only that the signing individual is authorized to provide the information to the NMMSS and will not imply any responsibility for proper shipment or receipt of the materials reflected on the non-DOE/NNSA side of the document.

(3) These facilities will complete the numbered blocks on DOE/NRC F 741 as specified in the main body of Chapters II, III, IV, and V of this Manual.

b. The following instructions are specific for importers and exporters of nuclear materials and apply only to shipments containing 1 gram or more of SNM or 1 kilogram or more of source material.

(1) **Block 1, Shipper's RIS**. The U.S. exporting facility will enter its RIS in block 1. The U.S. importing facility will enter the foreign shipper's RIS from the NMMSS International Nuclear Facilities Codes Directory.

(2) **Block 2, Receiver's RIS**. The U.S. exporting facility will enter the foreign receiver's RIS from the NMMSS International Nuclear Facilities Codes Directory. The U.S. importing facility will enter its RIS.

c. **Block 14, Transfer Authority**. For exports, the U.S. exporter will enter the authorizing contract or foreign contract number as applicable, in accordance with the INMTS procedures. For further information regarding INMTS, contact the NMMSS operator. The U.S. importer will enter the authorizing contract, if applicable.

d. **Block 15, Export or Import Transfers, License Number**. The U.S. facility will enter the appropriate authorizing SED number or license in this field if applicable. See Chapter IV for further guidance.

e. **Block 23c, U.K. Reportable**. U.S. exporters or importers involved in a transfer with the United Kingdom will enter the transfer category in this block by checking one of the following.

(1) A transfer of material pursuant to the U.S./U.K. Mutual Defense Agreement, check NO.

(2) A transfer of material for military use but not pursuant to the U.S./U.K. Agreement, check NO.

(3) A transfer of material for peaceful use, check YES.

f. **Block 26d, Identification** (Item/Batch Name).

(1) A U.S. facility that is an exporter completing the shipper's data will create a batch name that will be unique to that transaction within the facility. For fuel assemblies, pins, sealed sources, and UF_6 cylinders, the batch name will be its identification number. In addition, fuel assemblies, pins, sealed sources, and UF_6 cylinders will each be separate batches.

(2) A U.S. facility that is an importer completing the shipper's portion of the data for the foreign facility will obtain and use the shipper's batch name as provided by the shipper.

(3) If data previously reported on a batch are being corrected, the same batch name must be used on the correction document as on the original document. If the batch name is being corrected, the "was" line should show the batch name originally reported and the "should be" line should show the correct batch name.

g. **Block 26g, Material Type**.

(1) A U.S. facility that is an exporter completing the shipper's data will enter the correct U.S. MT code from Table XV-2.

(2) A U.S. facility that is an importer completing the shipper's data for a foreign facility will convert the IAEA element code provided by the shipper to the U.S. MT code from Table XV-16. If the foreign facility does not provide an IAEA element code, the U.S. facility will supply the appropriate U.S. MT code and attach a concise note to this effect.

h. **Block 27d, Identification (Batch Name)**. Whether the U.S. facility is an importer completing the receiver's data or an exporter completing the receiver's portion of the data for a foreign facility, the U.S. facility will enter the same batch name as entered in block 26d.

i. **Block 27g, Material Type**.

(1) A U.S. facility that is an importer completing the receiver's data will enter the correct U.S. MT code from the list of material types in block 26g.

(2) A U.S. facility that is an exporter completing the receiver's data for the foreign facility will enter the same MT code as entered in block 26g.

j. **Blocks 17-21, Obligation Information**. For imports or exports involving foreign obligated material, the U.S. facility will complete these fields as described in

Chapter VIII. NOTE: Only EURATOM[1] and U.S. obligated material may be transferred under a Mutual Defense Agreement.

7. DISTRIBUTION OF DOE/NRC F 741. Distribution of DOE/NRC F 741 data will be in accordance with the following procedures.

a. Secondary Distribution of DOE/NRC F 741. The NMMSS (QFA) will make secondary distribution of DOE/NRC F 741 at the close of the process month for the countries/entities with which the United States has bilateral agreements for cooperation that require report distribution. This distribution is made for Australia, Canada, EURATOM, and Japan through the DOE Office of Nonproliferation Policy.

(1) For transactions involving 42 U.S.C. §2121(c), Material for EURATOM, the shipper must prepare and distribute an additional copy of the receipted DOE/NRC F 741 to the NNSA Service Center.

(2) Copy 2 of DOE/NRC F 741 will accompany the shipment if it contains 1 or more grams of SNM or 1 or more kilograms of source material.

b. For Transfers of Material to or from the United Kingdom (QZG) under the Mutual Defense Program, the distribution instructions below will apply.

(1) If the data documenting the transfer is classified RD/FRD, 9 copies are to be distributed as follows.

(a) Copies 1–5

OUTER ENVELOPE

Chief, Joint Atomic Information Exchange Group
8725 John J Kingman Road
Mail Stop 6201
Ft. Belvoir, VA 22060-6201
Attn: JAIEG

INNER ENVELOPE

Chief, Joint Atomic Information Exchange Group
8725 John J Kingman Road
For: (name of recipient)
Ft. Belvoir, VA 22060-6201
Attn: JAIEG

[1]EURATOM comprises the following member states: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom

(b) Copy 6.

OUTER ENVELOPE

U.S. Department of Energy
P.O. Box 23865
Washington, D.C. 20026-3865

INNER ENVELOPE

U.S. Department of Energy
NNSA Logistics and Materials Management Division
P.O. Box 23865
Washington, D.C. 20026-3865

(c) Copy 7.

Chief, Joint Atomic Information Exchange Group
Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, VA 22310-3398

(d) Copy 8.

NNSA Service Center
P.O. Box 5400
Albuquerque, NM 87115
Attn: Director, Security and Nuclear Safeguards

(e) Copy 9. Retain for internal use.

(f) The shipper/receiver will include a letter of transmittal to the Chief, Joint Atomic Information Exchange Group requesting that copies 1 through 5 of DOE/NRC F 741 be forwarded [for ultimate transmittal to Atomic Weapons Establishment (AWE)] to—

British Embassy
Washington, D.C.
Attn: Atomic Coordinating Office

(2) If the transfer represents a loan of weapons material, both the DOE/NRC F 741 and the letter of transmittal should include a reference to a U.S. loan authorization.

(3) If the transfer represents a sale of nuclear material to the United Kingdom, record the transaction as Purchased by Aldermaston (PALD) or Purchased by Aviation Ministry (PAM) sales authorization, as appropriate.

(4) The shipper/receiver also should instruct the British Defense Staff to sign two copies of the DOE/NRC F 741 documenting the transfer, and to forward one copy to the DOE/NNSA shipper/receiver and one copy to—

NNSA Service Center
RIS AAA
P.O. Box 5400
Albuquerque, NM 87115
Attn: Director, Security and Nuclear Safeguards

(5) If the DOE/NRC F 741 documenting the transfer is unclassified, or classified NSI, three copies (copies 6 and copies 8–9) of the form are to be distributed according to the locations noted above. Copy 1-5 and 7 are not required by the Joint Atomic Information Exchange Group. Copies 1-5 are to be distributed to the U.S. DOE/NNSA location noted above.

8. AMENDMENTS OR ADJUSTMENTS TO PREVIOUSLY ISSUED DOE/NRC F 741. If it is necessary to amend, adjust, or correct data previously entered on a DOE/NRC F 741, the procedures described in Chapters II, III, IV, and V of this Manual will be followed.

CHAPTER VIII. NUCLEAR MATERIAL TRANSACTION REPORTING— FOREIGN OBLIGATIONS TRACKING FOR DOE/NRC F 741 BLOCKS 17, 18, 19, 20, AND 21

1. INTRODUCTION.

   a. Special procedures must be used to implement the reporting requirements of the U.S. Bilateral Agreements for Peaceful Nuclear Cooperation. These agreements for cooperation are necessary to allow the U.S. Nuclear Industry to trade with foreign countries/entities, per Section 123 of the Atomic Energy Act of 1954.

   b. The Agreements require that the U.S. track and report the foreign-obligated nuclear materials and produced nuclear materials from these countries/entities within the boundaries of the U.S.

   c. A foreign obligation can be defined as a commitment by one government to another to treat nuclear materials, nonnuclear materials, equipment and components in a manner consistent with the agreement signed between the two governments.

   d. In addition to these agreements for cooperation, the U.S. has a requirement to track and report to Russia the imports, exports, and use of the Former Soviet Union down-blended highly-enriched uranium.

   e. Facilities that are importers and/or exporters of nuclear material also should comply with Chapters VII and IX.

2. PROHIBITION ON USE OF FOREIGN OBLIGATED MATERIAL. Material that has a foreign obligation attached under an Agreement for Cooperation in the Peaceful Uses of Nuclear Energy may not be shipped to or received by a facility with a Q RIS.

3. IMPORTS.

   a. For U.S. facilities importing nuclear material with foreign obligations, the relevant obligation information will be supplied by the appropriate Government agency (DOE, Department of State, NRC) in advance of the receipt. This Government notification will supply the U.S. facility with the information necessary to complete blocks 17-21, if applicable.

   b. For imports, the foreign obligation information can be—

      (1) country/entity from which the nuclear material was shipped, and/or

      (2) country/entity attaching third-party obligations.

In most cases, for imports from a country that has made the entire shipment subject to the agreement, the total import quantity will be obligated. If only a portion of the shipment is subject to an agreement (third party obligation), that amount will be clearly specified on the documentation. These will be identified as such in the Government notification supplied to the U.S. facility in advance of the import.

c. The Government notification will supply the following information for the completion of blocks 17–21:

(1) the country/entity code of obligation,

(2) the material type, and

(3) the amount obligated.

d. See Table XV-17 for country/entity codes. See Table XV-18 for reportable obligated material types and quantities.

4. COMPLETION OF OBLIGATION INFORMATION.

a. **Block 17, Line Number**. The facility will enter a sequential number (01 through 99) for each obligated country or material. If there is more than one separate obligation or more than one obligated material type, enter the appropriate numbers in the subsequent lines.

b. **Block 18, Country of Obligation**. For each obligation line, enter the code from Table XV-17 that represents the country/entity of obligation.

c. **Block 19, Material Type**. For each obligation line, enter the domestic code from Table XV-18 that represents the material obligated. The only material types to be reported are 10, 20, 50, 70, 81, and 88.

d. **Block 20, Obligated Element Weight**. Enter the element weight of the amount obligated. Refer to Table XV-18.

e. **Block 21, Obligated Isotope Weight** (for Enriched Uranium in U-235 and or U-233 only). Enter the isotope weight of the amount obligated to the nearest gram.

5. DOMESTIC TRANSFERS, INTERNAL TRANSACTIONS, AND EXPORTS.

a. For U.S. facilities shipping or exporting material with foreign obligations, or for the reporting of onsite gains and losses, the obligations on the material must be stated as such in blocks 17–21.

b. For domestic transfers, blocks 17–21 will be filled out as explained in paragraph 4 above.

(1) The U.S. shipper will assign the appropriate obligations on the material, if any, and complete the line number, country/entity of obligation, material type and obligated weight entries, as applicable.

(2) The U.S. receiver will complete the matching obligation information as assigned by the shipper, if accepting shipper's values. If receiver does not accept shipper's weights, the receiver's weights will be recorded for the foreign obligated material.

c. For internal transactions (e.g., burn-up, decay, production, measured discards, accidental losses or gains, category changes, fission and transmutation, inventory differences, etc.), enter the line number, country/entity of obligation, material type and obligated weights, if applicable.

d. For exports, the U.S. shipper will complete both the shipper's and receiver's DOE/NRC F 741.

e. If the U.S. shipper is exporting foreign obligated material, the U.S. shipper will complete blocks 17–21 for each obligated country/entity or material exported. NOTE: If the export requires an NRC export license, the license should specifically permit the export of that obligated material on the face of the license. See Chapters VII and IX for additional information on imports and exports.

CHAPTER IX. NUCLEAR MATERIAL TRANSACTION REPORTING— FACILITIES SELECTED BY THE IAEA

1. INTRODUCTION.

   a. Special procedures must be used to implement some of the reporting requirements of the U.S./IAEA Safeguards Agreement.

   b. This chapter provides direction for use of these special procedures for facilities that have been selected either under the terms of the U.S./IAEA Safeguards Agreement or Protocol. Such facilities should note that all requirements and procedures in the main body of this Manual apply, in addition to the special requirements of this chapter.

   c. Facilities selected under the U.S./IAEA Safeguards Agreement that are importers and/or exporters of nuclear material also should comply with Chapters VII and IX.

   d. For further guidance, refer to Code 10 of the Subsidiary Arrangements to the U.S./IAEA Safeguards Agreement.

2. BATCH FORMATION AND NAMING.

   a. Reporting of inventory changes on DOE/NRC F 741 under the U.S./IAEA Safeguards Agreement is at the batch level of detail. Batch is defined in Chapter XVII.

   b. In general, the data on a batch are contained on a single detail line of DOE/NRC F 741.

   c. All material in a single batch must have the same value for all of the following data elements:

      (1) type of inventory change,

      (2) batch name,

      (3) number of items,

      (4) composition/facility code,

      (5) key measurement point, and

      (6) measurement identification code (i.e., measurement basis, other measurement point, and measurement method).

d. If the material in a single batch has multiple values for data elements, the data for the batch must be listed on two or more detail lines, with common data elements repeated. An example of a batch requiring more than one line would be irradiated fuel containing both uranium and plutonium. The data for such a batch would be listed using one line for uranium data and one line for plutonium data.

e. If a facility selected by the IAEA receives a shipment, the receiver's data must be reported with a one-to-one, line-by-line correspondence to the shipper's data rather than at the batch level of detail.

f. If inventory change code 22 or 71 is entered in block 26c or 27c, as applicable, the batch name in block 26d or 27d must be composed of the appropriate character code from Table XV-21, followed by a unique sequence number (e.g., EN-800423). (The IAEA does not require the reporting of category changes of enrichment for enriched uranium.) For each entry with an inventory change code of 22, there must be a corresponding entry with an inventory change code of 71 with the same batch name.

g. Guidance for reporting de-exemption for use or quantity and exemption for use, quantity, or termination due to nonnuclear use will be provided by the Office of Plutonium, Uranium and Special Materials Inventory, and the Office of International Safeguards. A description of de-exemption codes (e.g., DU, DQ, EU, EQ, etc.) is given in Code 10 of the Subsidiary Arrangements to the U.S./IAEA Safeguards Agreement.

3. DETAILED INSTRUCTIONS.

a. Facilities selected by the IAEA are required to use DOE/NRC F 741 for documentation of all transactions, including transfers between the IAEA material balance areas (MBAs) within the facility and certain other types of onsite inventory changes. Specific instructions for these onsite inventory changes will be provided by the Office of International Safeguards on a case-by-case basis.

b. Facilities notified of selection by the IAEA will complete the numbered blocks on DOE/NRC F 741 as specified in Chapters XII, XIII, and XIV of this Manual with the following additional requirements.

(1) **Block 23b, Concise Note Attached**. The domestic shipper or receiver places an X in the appropriate box to indicate whether or not a concise note is attached to the DOE/NRC F 741.

(2) DOE/NRC F 740M. A concise note will be used by the shipper or receiver to supply additional nuclear materials transaction data in free text format, either at the reporting facility's option or as required by the facility attachment or transitional facility attachment. See Chapter X for further information on concise notes.

(3) **Block 26, Shipper Data**.

(a) **Block 26c, Type of Inventory Change**. When reporting types of transactions denoted by codes DU, DQ, EU, EQ, or TU, a special code will be required in this block. Special codes and procedures will be provided by the Office of International Safeguards on a case-by-case basis.

(b) **Block 26d, Identification** (Item/Batch Name).

1 The shipper will create a unique batch name. For guidance regarding the number of characters in a batch name, contact the NMMSS operator. For fuel assemblies, pins, sealed sources, and UF_6 cylinders, the batch name will be its identification number. A batch name will not appear more than once on a single DOE/NRC F 741 unless the data for a single batch requires more than one line.

2 If inventory change code 22 or 71 is entered in block 26c or 27c or transaction code DU, DQ, EU, EQ, or TU is being reported, see Chapter VII of this Manual for guidance in constructing a batch name.

3 If data previously reported on a batch is being corrected, the same batch name must be used on the correction document as on the original document. If the batch name is being corrected, the "was" line should show the batch name originally reported and the "should be" line should show the correct batch name.

(c) **Block 26h, Composition/Facility Code**. Special codes and procedures will be provided by the Office of International Safeguards on a case-by-case basis.

(d) **Block 26j, Key Measurement Point**. Enter the appropriate flow key measurement point code of the facility attachment or transitional facility attachment.

(e) **Block 26k, Measurement Identification** consists of measurement basis, other measurement point, and measurement method as shown below.

1 Measurement Basis. Enter the appropriate code from the following list.

a N—batch data are based on measurements made at another MBA, and this is the first time the data are being reported for this MBA.

b L—batch data are based on measurements made at another MBA, the data are being reported for the MBA and this is the second, third, etc., time.

c M—batch data are based on measurements made at this MBA, and this is the first time the data are being reported for this MBA.

d T—batch data are based on measurements made at this MBA, and this is the second, third, etc., time the data are being reported for this MBA.

2 Other Measurement Point. If an M was entered for the measurement basis, enter the appropriate code to indicate the key measurement point if different from the key measurement point indicated by the code in block 26j.

3 Measurement Method. If two or more measurement methods having different measurement uncertainties may be employed at a particular key measurement point, enter the appropriate code to indicate the method used for measurement, as agreed with the IAEA.

c. **Block 27, Receiver's Data**.

(1) **Block 27c, Type of Inventory Change**. Fill out as per instructions above for block 26c.

(2) **Block 27d, Identification** (Item/Batch Name). Enter the same batch name as the shipper entered in block 26d.

(a) If a batch name has not been assigned, see Chapter VII of this Manual for guidance in constructing a batch name.

(b) If the material is being imported, the receiver will use the batch name provided by the shipper.

(3) **Block 27h, Composition/Facility Code**. Fill out as per instructions above for block 26h.

(4) **Block 27j, Key Measurement Point**. Fill out as per instructions above for block 26j.

(5) **Block 27k, Measurement Identification**. Fill out as per instructions above for block 26k.

CHAPTER X. NUCLEAR MATERIAL TRANSACTION REPORTING—CONCISE NOTE

1. INTRODUCTION. Facilities are to submit concise notes under the following circumstances.

   a. Facilities selected under the U.S./IAEA Safeguards Agreement or Protocol are required to submit concise notes to accompany submission of transaction, material balance and physical inventory data, as appropriate, for conveying explanatory information to the IAEA.

   b. Facilities engaged in the import and/or export of nuclear materials that for any reason cannot use the same batch name as the shipper or if the shipper fails to supply a batch name, the importer should supply his own batch names and attach a concise note to that effect.

   c. If the shipper fails to supply its IAEA facility code or the IAEA material type code, a concise note should be prepared stating that the data was not supplied.

   d. Facility attachments or transitional facility attachments for selected facilities may specify circumstances under which concise notes are required to be submitted to the IAEA accompanying other reports. Such concise notes are used to convey to the Foreign State the required data items associated with reported accounting data.

2. INSTRUCTIONS FOR COMPLETING DOE/NRC FORM 740M

   a. **Block 1, Name and Address**. Leave blank.

   b. **Block 2, Attachment to**. Place a check mark or an X in the appropriate box to indicate whether this explanatory information will be attached to a DOE/NRC Form 741, 742, or 742C.

   c. **Block 3, RIS**. Enter the RIS for your facility to which the explanatory information in this report applies.

   d. **Block 4, Reporting Period**. Complete this block if 2b or 2c was checked, indicating that this concise note is attached to a DOE/NRC F 742C, Physical Inventory Listing. Enter the beginning and ending dates of the reporting period as shown on DOE/NRC F 742 or F 742C.

   e. **Block 5, Transaction Data**. Complete this block only if box 2a was checked, indicating that this F 740M is attached to a DOE/NRC F 741. All entries in this

block must be identified to those on the DOE/NRC F 741. Fill in the blocks as follows.

(1) **Block 5a.** Enter shipper's RIS.

(2) **Block 5b.** Enter receiver's RIS.

(3) **Block 5c.** Enter the unique transaction number.

(4) **Block 5d, Correction Number**. Used when DOE/NRC F 741 is a correction to a previous report.

(5) **Block 5e, Processing Code**. Enter the same code as was used in the DOE/NRC F 741.

(6) **Block 5f, Action Code**. If a DOE/NRC F 740M is attached enter the same action code as in block 6 of the DOE/NRC F 741. Otherwise enter action code M.

f. **Block 6, Reporting Date**. Complete this block if box 2a or 2c was checked. Copy the date shown on DOE/NRC F 741 or 742C.

g. **Block 7**. The actual explanatory data and the other data necessary to link the explanatory data to the parts of the report to which they apply. Complete this block as follows.

(1) **Block 7a, Line Number**. Enter the consecutive number beginning with one (01) for each explanatory reference.

(2) **Block 7b, Entry Reference**.

(a) If the explanatory information entered on this line of the DOE/NRC F 740M applies to the entire DOE/NRC F 741, 742, or 742C, enter the words, "Whole Report."

(b) If the explanation applies to the data on a specific batch on a DOE/NRC F 741 or 742C, copy the batch name exactly as it appears on DOE/NRC F 741 or 742C.

(c) If the explanation applies to a specific material balance category on a DOE/NRC F 742, enter the two-digit number of the material balance category.

(d) If the explanation applies to material balance categories 11, 30, 42, 43, or 51, enter the RIS shown on the line of the DOE/NRC F 742.

(e) If the explanation applies to categories 22 or 71, enter the 2-character inventory change type (ICT) as shown on that line of the DOE/NRC F 742.

(f) If DOE/NRC F 740M action code is M, enter "General."

(3) **Block 7c, Text of Concise Note**. Enter any 43 characters, letters, numbers, or special characters per line. Up to 99 lines of text may be used for any one explanation.

h. **Block 8.** The DOE/NRC F 740M is to be signed by an authorized representative of the facility.

i. **Block 9.** Enter the title of the person signing the form.

j. **Block 10**. Enter the date the form was signed.

k. Computer-Readable Format. DOE/NRC F 740M may be put into computer-readable format following additional guidance in NMMSS Reports D-22 and D-23.

l. Distribution.

(1) The concise note will be submitted at the same time as the submission of the data to which the concise note refers.

(2) If associated with a DOE/NRC F 741, 742, and/or 742C, copies of DOE/NRC F 740M will be attached as applicable.

(3) Under certain circumstances, a DOE/NRC F 740M can be submitted as a stand alone document (e.g., to comply with IAEA reporting requirements).

CHAPTER XI. MATERIAL BALANCE REPORTING

1. INTRODUCTION.

   a. This chapter provides instructions to DOE/NNSA license-exempt contractors and NRC and Agreement State licensees that are DOE/NNSA contractors for the preparation and distribution of DOE/NRC F 742, Material Balance Report, (MBR) or its electronic equivalent.

   b. Chapter XII contains special MBR instructions for facilities that have been selected under the terms of either the U.S./IAEA Safeguards Agreement or Protocol. The calculations for and preparation of the MBR to be provided to the IAEA will be performed by NMMSS. Before the report is dispatched to the IAEA, NMMSS will provide a copy to the facility concerned to ensure that the data is correct.

   c. An MBR must be prepared either by the NMMSS operator or by the facility. The preparation and submittal of an MBR by a facility is optional. A facility may place a standing request with NMMSS to have a NMMSS-generated MBR, DOE/NRC F 742, provided to the facility in lieu of submission of reports. In such cases, the facility that receives the NMMSS-generated report must reconcile the facility's balances to the NMMSS. Reconciling transactions must be submitted if NMMSS balances are to be changed.

   d. MBRs will be submitted—

      (1) semiannually, March 31 and September 30 for all facilities; or

      (2) monthly or quarterly, (March 31, June 30,September 30, and December 31,) if directed to do so by the cognizant field element or site office; or

      (3) as specified in facility attachments or transitional facility attachments for DOE/NNSA facilities selected under the provisions of the U.S./IAEA Safeguards Agreement.

   e. Nuclear material in transit at the end of a reporting period will be included in the receiver's reported inventory as if it had reached the intended receiver within the reporting period (in transit rule).

   f. Radioactive decay will be reported on MBRs on a quarterly basis when the decay has reached reportable quantities or at a more frequent reporting interval if required by the cognizant field element or site office.

2. CLASSIFICATION AND SECURITY REQUIREMENTS. The submitted MBR, whether submitted on paper or electronically, will be classified using appropriate classification guidance and following the procedures contained in DOE M 475.1-1A and will be marked with appropriate classification markings and transmitted following procedures contained in DOE O 471.2A, and DOE M 471.2-1C.

3. REPORTING UNITS.

   a. Quantities will be reported by element and isotope weight in metric units. Refer to Tables XV-2 and XV-18.

   b. Enter the element weight, i.e., total weight of all isotopes contained in the element being reported in column A.

   c. Enter the isotope weight, i.e., weight of the isotopes for the element being reported in column B.

   d. Convert volume measurements that have been made or records that are kept in volume units to the reporting unit for the material type.

   e. If the degree of precision to which facility records are kept is greater than that required for reporting purposes, the rounding procedures defined in Chapter II, paragraph 6 will be used.

4. INSTRUCTIONS FOR COMPLETING DOE/NRC F 742. Data submitted on paper will be reported as follows.

   a. **Block 1.** Enter the name and address of the facility.

   b. **Block 2.** Enter the appropriate possession license numbers if the reporting facility is a licensed contractor.

   c. **Block 3, RIS**. Enter the RIS under which the material being reported is or was held. Submit a separate DOE/NRC F 742 for each RIS.

   d. **Block 4, Report Period**. Enter inclusive dates (MM/DD/YYYY).

   e. **Block 5, Material Type**. Enter the name of the material (See Table XV-1). NOTE: Submit a separate report for each type.

   f. **Block 6a, Process Code**. Leave blank.

   g. **Block 6b, Correction ID**. Leave blank.

h. **Block 7, DOE/NRC F 740M Attached**. Only required for facilities selected under the U.S./IAEA Safeguards Agreement.

i. **Line 8, Beginning Inventory—U.S. Government Owned**. Enter inventory of U.S. Government owned material as of opening of business on the first day of the report period covered by the DOE/NRC F 742. These figures will not differ from line 80 of the DOE/NRC F 742 submitted at the close of the preceding report period.

j. **Line 9, Beginning Inventory—Not U.S. Government Owned**. Enter inventory of non-DOE/NNSA-owned material as of the opening of business on the first day of the report period covered by the DOE/NRC F 742. These figures will not differ from line 81 of the DOE/NRC F 742 submitted at the close of the preceding report period.

k. **Line 11, Procurement from DOE/NNSA**. Enter quantities of material purchased from DOE/NNSA during the report period. (Quantities entered on line 11 will not be entered on line 30.)

l. **Line 13, Procurement for the Account of DOE/NNSA**. Enter quantities of material procured from domestic and foreign sources that increase the assets of DOE/NNSA. Returns of DOE/NNSA-owned leased material from licensees and foreign entities will be entered on line 30. The following are examples of procurement to be reported on line 13.

(1) Material acquired under the terms of an international agreement for cooperation with foreign entity.

(2) Material previously sold by DOE/NNSA to a licensee or foreign entity and then repurchased by DOE/NNSA

(3) Material procured from private owners.

m. **Line 14, DoD Returns—Use A**. Enter quantities of material in returns of weapons and weapons components issued to DoD under Presidential directive.

n. **Line 15, DoD Returns—Use B**. Enter quantities of material contained in returns of training material issued to DoD under Presidential directive.

o. **Line 16, DoD Returns—Other Uses**. Enter quantities of material in returns of reactor cores, fission chambers, and other material issued to DoD under Presidential directive for use in military non-weapons programs (e.g., nuclear research and development, propulsion, or electric power generation programs).

p. **Line 21, Production**. Enter quantities of material obtained through transmutation.

(1) For production reactors, production will be reported in the period during which transmutation takes place in the reactor.

(2) For reactors other than production reactors, production will be reported no less often than upon discharge from the reactor. If the operation of the reactor for the year long period October 1 through September 30, results in nuclear production of 5 kilograms or more of enriched uranium or plutonium, production must be reported on DOE/NRC F 742 as of September 30, and no less often than annually.

(3) Differences between reactor calculations and dissolution measurements will be reported on line 21. Production of insignificant quantities of material (quantity is less than 0.5 of the reporting unit for a specific material type), as in a materials testing reactor, need not be reported unless the material is to be recovered or a reporting requirement is imposed by the responsible field element or site office.

q. **Line 22, From Other Materials**. Enter receipts from other material balances as a result of intentional blending or crossovers. Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter XII for additional requirements. Examples of receipts to be reported on line 22 are given below.

(1) In a production reactor, normal uranium will become depleted uranium during operation of the reactor. Line 22 on the depleted uranium MBR for the facility operating the reactor will indicate receipts from the normal uranium balance. Correspondingly, line 71 on the normal uranium MBR for the facility will reflect removals to the depleted uranium balance.

(2) The blending of depleted and enriched uranium in the proper proportions will result in normal uranium. Line 22 on the normal uranium MBR will indicate receipts from the depleted and enriched uranium balances. Correspondingly, line 71 on the depleted and enriched uranium MBRs will reflect removals to the normal uranium balance.

r. **Line 30**. Receipts Reported to DOE/NRC (on DOE/NRC F 741). Enter, by transfer series, all receipts for the report period not entered on lines 11-16, 34, 37, 38, and 39. If more space is needed than is provided on DOE/NRC F 742, prepare a sub-schedule entitled "Receipts Reported to DOE/NRC on DOE/NRC F 741 (not listed elsewhere)." Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter XII for additional requirements.

s. **Line 34, Receipts—Miscellaneous**. Enter quantities of material received in two-party transactions where only receiver's data are reported. Examples include receipts of material (not reported elsewhere) from facilities that have not been assigned a RIS, and receipts from licensees that are not required to document or report transactions.

t. **Line 37, Procurement by Others**. Enter quantities of material purchased by the facility for its own account from *in situ* material, which it had been holding under lease from the DOE/NNSA, or, material that the facility is processing for a non-DOE/NNSA facility against a non-DOE/NNSA purchase order.

u. **Line 38, Donated Material—from U.S. Government to Others**. Enter quantities of material donated, i.e., change in ownership without transfer of funds, which increase the reporting facility's non-U.S. Government-owned inventory and decrease the assets of the U.S. Government.

v. **Line 39, Donated Material—from Others to the U.S. Government**. Enter quantities of material donated, i.e., change in ownership without transfer of funds, which increase the assets of U.S. Government and decreases the reporting facility's non-U.S. Government owned inventory.

w. **Line 40, Total**. Enter the total of lines 8–39.

x. **Line 41, Expended in Space Programs**. Enter quantities of material transferred for use in a space vehicle (e.g., for propulsion or nuclear auxiliary power system). The reporting facility will provide the cognizant field element or site office the following details with respect to ultimate disposition of the material.

(1) Date vehicle was launched into space or placed into orbit, or if vehicle misfired or failed to orbit, losses of material associated therewith (if attempts at recovery have been made and there is some recovery, only material not recovered will be reported on line 41).

(2) Project name.

(3) Launch site.

(4) Any other pertinent information.

y. **Line 42, Sales to U.S. Government**. Enter quantities of material sold during the reporting period. (Quantities entered on line 42 will not be entered on line 51.)

z. **Line 43, Sales to Others for the Account of U.S. Government**. Enter quantities of U.S. Government owned material sold to other Government agencies, licensees, and foreign entities.

aa. **Line 44, DoD—Use A**. Enter quantities of material in shipments of weapons and weapons components to DoD under Presidential directive.

bb. **Line 45, DoD—Use B**. Enter quantities of material in shipments of Training Material to DoD under Presidential directive.

cc. **Line 46, DoD—Other Uses**. Enter quantities of material in shipments of reactor cores, fission chambers, and other material to DoD under Presidential directive for use in military non-weapons programs (e.g., nuclear research and development, propulsion, or electric power generation programs).

dd. **Line 47, Expended in U.S. Government Tests**. Enter quantities of material expended in U.S. tests authorized by the President. The cognizant field element or site office will maintain sub-schedules that provide details (e.g., project name and quantity of material) for each shot expended under Presidential directive.

ee. **Line 48, Routine Tests**. Enter quantities of source material expended in routine testing associated with weapons-related research and development activities. The use of line 48 for the reporting of other than source material requires prior approval by the cognizant field element or site office.

ff. **Line 49, Shipper-Receiver Difference**. Leave blank.

gg. **Line 51, Shipments Reported to DOE/NRC** (on DOE/NRC F 741). Enter, by transfer series, all shipments for the reporting period not entered on lines 42–46, 54, 58, and 59. If more space is needed than is provided on DOE/NRC F 742, prepare a sub schedule entitled "Shipments Reported to DOE/NRC on DOE/NRC F 741 (not listed elsewhere)." Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter XII for additional requirements.

hh. **Line 54, Shipments—Miscellaneous**. Enter quantities of material shipped in two-party transactions where only shipper's data are reported. Examples include shipments (not reported elsewhere) to facilities that have not been assigned a RIS, and shipments to licensees that are not required to document or report transactions.

ii. **Line 58, Donated Material—to U.S. Government by Others**. Enter quantities of material donated i.e., change in ownership without transfer of funds, which decrease the reporting facility's non-U.S. Government owned inventory and increase the assets of the U.S. Government.

jj. **Line 59, Donated Material—to Others by the U.S. Government**. Enter quantities of material donated i.e., change in ownership without transfer of funds, which decrease the assets of the U.S. Government and increase the reporting facility's non-U.S. Government owned inventory.

kk. **Line 65, Rounding Bias**. Enter any rounding bias quantity that is technically supportable.

ll. **Line 71, Degradation to Other Materials**. Enter removals to other material balances as a result of intentional blending degradation, or crossovers. Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter XII for additional requirements. Examples of removals to be reported on line 71 are given below.

(1) In a production reactor, normal uranium will become depleted uranium during operation of the reactor. Line 71 on the normal uranium MBR for the facility operating the reactor will indicate removals to the depleted uranium balance. Correspondingly, line 22 on the depleted uranium MBR for the facility will reflect receipts from the normal uranium balance.

(2) The blending of depleted and enriched uranium in the proper proportions will result in normal uranium. Line 71 on the depleted and enriched uranium MBRs will indicate removals to the normal uranium balance. Correspondingly, line 22 on the normal uranium MBR will reflect receipts from the depleted and enriched uranium balances.

mm. **Line 72, Decay**. Apply the appropriate decay factor as indicated in Chapter XV and enter the calculated radioactive decay on line 72.

nn. **Line 73, Fission and Transmutation**. Enter quantities of material consumed as a result of exposure in a device.

(1) For DOE/NNSA production reactors, material consumed will be reported on a current basis, i.e., as transmutation and burn-up take place in the reactor.

(2) For reactors other than production reactors, material consumed will be reported no less often than upon discharge from the reactor. If the operation of the reactor for the year long period October 1 through September 30 results in a nuclear loss of 5 kilograms or more of enriched uranium or plutonium, the quantity of material consumed must be reported on line 73 of DOE/NRC F 742 as of September 30 and no less often than annually.

(3) Differences between reactor-calculated quantities of material consumed and the quantities measured after dissolution will be reported on line 73.

oo. **Line 74, NOLs/Measured Discards**. Enter known quantities of material, determined by measurement or by estimate on the basis of measurement, which have been intentionally removed from inventory and disposed of by approved

methods. NOLs/measured discards result when known quantities of nuclear material are separated from a process or operation as waste during processing and are determined to be uneconomical to recover. Facilities selected under the U.S./IAEA Safeguards Agreement should see Chapter XII for additional requirements. Examples of quantities to be reported on line 74 of DOE/NRC F 742 are—

(1) discards to cribs, tanks, settling ponds, or waste management sites; and

(2) discards in contaminated equipment, laundry, or shoe covers.

pp. **Line 75, Accidental Losses**. Enter known quantities of material, determined by measurement or by estimate on the basis of measurement to have been inadvertently lost as a result of an operational accident.

qq. **Line 76, Approved Write-offs**. Enter known quantities of "good" materials which, with prior approval by the cognizant field element or site office, have been removed from inventory records. Approved write-offs are usually restricted to "good" material that has been used in such a manner as to lose its identity and for which nuclear material accountability is deemed no longer necessary. If material that was previously removed as a write-off is returned to active inventory, enter a negative quantity on line 76 to reestablish nuclear material accountability.

rr. **Line 77, Inventory Difference**. Enter the algebraic difference between the physical inventory and its corresponding book inventory after determining that all known additions and removals have been reflected in the book inventory. Inventory difference may be either a positive or negative quantity. A gain of material is reflected by a negative inventory difference, and will be indicated by a negative (minus) sign.

ss. **Lines 80, Ending Inventory—U.S. Government Owned**. Enter, as appropriate, the inventory as of the close of business of the last day of the reporting period. If a physical inventory is to be used as the basis for ending inventory reported on lines 80 and 81, the physical inventory must be adjusted for all additions and removals occurring between the time of the physical inventory and the close of the report period. The ending inventory entered on lines 80 and 81 must agree with the respective totals for the material type submitted to the NMMSS on DOE/NRC F 742C, Physical Inventory Listing.

tt. **Line 81, Ending Inventory— Not U.S. Government Owned**. Enter, as appropriate, the inventory as of the close of business of the last day of the reporting period.

uu. **Line 82, Total**. Enter total of lines 41–81. The total reported on line 82 must agree with the total reported on line 40.

vv. **Line 83, Bias Adjustment**. Not applicable to contractors.

ww. Section B—Foreign Obligations. The total amount of obligated nuclear material on hand as of the date of the report (amount on line 80 or 81 or the sum of lines 80 and 81) must be accounted for within material type, but may not exceed physical inventory. The following entries, by column, are required.

(1) **Block 1: Country of Obligation**. Enter the 2-character country or entity designation from Table XV-17.

(2) **Block 2: Element Weight**. Enter the element weight of the amount obligated from Table XV-18. The only material types to be reported are 10, 20, 50, 70, 81, and 88.

(3) **Block 3, Isotope Weight**. For enriched uranium (in U-235 and or U-233) only. Enter the isotope weight of the amount obligated to the nearest gram.

(4) **Block 4, Total Weight**. Enter the totals for columns 2 and 3. These totals represent the total obligated material at the facility.

xx. Section C—Certification. DOE/NRC F 742 will be signed and dated by the reporting facility's authorized representative.

yy. Distribution of DOE/NRC F 742 Data. Do not send a copy of DOE/NRC F 742 data to the NMMSS if arrangements have been made to receive an NMMSS generated MBR or if reporting electronically. If DOE/NRC F 742 is prepared in paper form, copies of each will be distributed to NMMSS and also to other recipients, if any, in accordance with instructions provided by the cognizant field element or site office.

CHAPTER XII. MATERIAL BALANCE REPORTING— FACILITIES SELECTED BY THE IAEA

1. INTRODUCTION. Special procedures must be used to implement some of the reporting requirements of the U.S./IAEA Safeguards Agreement. This chapter provides instructions for use of these special procedures for facilities that have been selected under the terms of either the U.S./IAEA Safeguards Agreement or Protocol. Such facilities should note that all requirements and procedures in the main body of this Manual apply in addition to the special requirements of this chapter.

2. PREPARATION OF DOE/NRC F 742.

   a. DOE/NRC F 742 or its electronic equivalent will be completed by filling in the numbered blocks or lines listed in Chapter XI plus the fields that follow.

   b. **Block 7, DOE/NRC F 740M Attached**. Place an X in the appropriate box. Concise notes are optional unless required by facility attachments or transitional facility attachments. DOE/NRC F 740M, Concise Note, will be used by selected facilities to supplement material balance data on DOE/NRC F 742. Instructions for preparation and distribution of DOE/NRC F 740M are provided in Chapter X.

   c. **Line 22, From Other Materials**. For each entry on this line, fill in the appropriate 2-character ICT code (see Table XV-21) in the space provided to indicate the source and destination material balances for the inventory change being reported. The IAEA does not require the reporting of category changes for enriched uranium.

   d. **Line 30, Receipts Reported to DOE/NRC on DOE/NRC F 741**. For reporting the following types of receipts, special procedures will be provided on a case-by-case basis by the Office of Plutonium, Uranium and Special Materials Inventory. For further guidance, refer to code 10 of the Subsidiary Arrangements to the U.S./IAEA Safeguards Agreement.

   e. **Line 51, Shipments Reported to DOE/NRC** (on DOE/NRC F 741). For reporting the following types of removals, special procedures will be provided on a case-by-case basis by the Office of Plutonium, Uranium and Special Materials Inventory. For further guidance, refer to code 10 of the Subsidiary Arrangements to the U.S./IAEA Safeguards Agreement.

   f. **Line 71, Degradation to Other Materials**. For each entry on this line, enter the appropriate 2-character ICT code (Degradation), as shown in Table XV-21, in the space provided to indicate the source and destination material balances for the inventory change being reported.

CHAPTER XIII. INVENTORY REPORTING

1. INTRODUCTION.

   a. This chapter provides instructions to license-exempt contractors and NRC and Agreement State licensees that are contractors for the preparation and distribution of DOE/NRC F 742C, Physical Inventory Listing.

   b. Facilities transmitting data electronically to the NMMSS do not need to complete DOE/NRC F 742C but must follow the data format defined in these instructions.

   c. Data submitted will accurately reflect data entered on the related DOE/NRC F 742C, if F 742C is prepared. If data is submitted to NMMSS electronically, do not also submit the paper form.

   d. Special instructions for facilities selected by the IAEA under the terms of the U.S./IAEA Safeguards Agreement or Protocol are provided in Chapter XIV.

   e. Inventories of reportable quantities of depleted uranium will be submitted to the NMMSS.

   f. Inventory reports will be submitted to the NMMSS—

      (1) quarterly, March 31, June 30,September 30, and December 31 for all facilities; or

      (2) monthly, when directed to do so by the cognizant field element or site office; or

      (3) as specified in facility attachment or transitional facility attachments for DOE/NNSA facilities selected under the provisions of the U.S./IAEA Safeguards Agreement.

   g. Reports are due to the NMMSS operator no later than the 15th calendar day of the month following the due date of the inventory report.

   h. Nuclear material in transit at the end of a reporting period will be included in the receiver's reported inventory as if it reached the intended receiver within the reporting period (in transit rule).

   i. Inventory difference explanation data will be submitted to NMMSS within 1 workday after the explanation data are available, but no later than 8 working days after reporting the inventory difference.

2. NUCLEAR MATERIAL COMPOSITION CODES AND DESCRIPTIONS.

a. Nuclear material composition codes and descriptions may be found in the inventory profile report (I-17 report from NMMSS) developed by DOE/NNSA, their contractors, and NRC. The report is to be used as a guide for reporting the inventory composition code on DOE/NRC F 742C. A facility selected by the IAEA will report the IAEA material description code as appropriate.

b. The inventory profile will be updated as warranted and distributed to the appropriate users. The report is divided into an inventory data section (lines 005–899) and a miscellaneous data section (lines 900–998). Each section is arranged according to process, usage, chemical, and physical form. The report is designed so that additional lines can be added as necessary to both the inventory data section and the miscellaneous data section. Any proposed changes in the format are to be reported to the Office of Plutonium, Uranium and Special Materials Inventory.

3. AUTHORIZED PROFILES OF INVENTORY DATA.

a. Based on the nuclear material composition codes and descriptions referred to above, inventory profiles (I-17 reports from NMMSS) have been established for individual facilities and are contained in the authorized inventory profile report. Submission of compositions of ending inventory (COEI)[1] is to be based on the facility's profile. Necessary additions to the profile should be made prior to submission of inventory data to the NMMSS. The authorized inventory profile (I-17 reports from NMMSS) contains one of the codes, P, B, or C, for inventory data lines 005-899.

(1) P—piece count, material having a serial or other identification number.

(2) B—bulk count, material not having a serial or other identification number. Material in a container having an identification number should be held on a bulk count basis, unless the material in the container has an identification number.

(3) C—combination piece count/bulk count, material being held on both a piece count and a bulk count basis.

(4) The authorized inventory profile by facility report (I-17 report from NMMSS) acknowledges miscellaneous data lines 900–998 with an X in lieu of codes P, B, or C.

[1] For a listing of the COEI codes, contact the NMMSS operator.

(5) Entry lines will be deleted from a facility's profile when it is determined that no material in a category will be held on inventory for a reasonable period of time, i.e., at least 12 months.

(6) Any proposed changes in a facility's profile must be submitted through the cognizant field element or site office prior to coordination with the Office of Plutonium, Uranium and Special Materials Inventory.

4. NUCLEAR MATERIAL TYPE CODES. Material type codes, descriptions, and reporting units are given in Table XV-2.

5. RECONCILIATION OF FACILITY DATA WITH NMMSS.

a. Reconciliation is required semiannually of facilities after submission of March 31 and September 30 inventory data. The process is as follows:

(1) The facility submits its inventory for the period just ended and is provided with the results of processing in NMMSS.

(2) Preliminary reports are available upon request from the NMMSS for facility use in comparing facility data to NMMSS balances.

(3) The data at the facility and comparable data in the NMMSS are compared and adjustments are made to the facility books or to NMMSS, as appropriate regarding balances of material by type, ownership code, and project number, if DOE/NNSA-owned.

b. Reconciliation of facility data with NMMSS more frequently than semiannual periods above is permissible.

6. INVENTORY DIFFERENCE DATA. This section contains instructions for reporting data pertaining to inventory differences on DOE/NRC F 741 using action code M and an inventory change code 77. Inventory differences of SNM require an explanation.

a. Inventory Difference Categories. There are 15 categories of inventory difference explanation data. The categories are reported by entering a two-digit numeric code in the type of inventory change field (24b). The categories and the corresponding inventory change codes are shown in Table XV-4 and are defined in the paragraphs that follow. For additional guidance, see DOE M 474.1-1B.

(1) Lower warning limit (code 84)—the lowest level of inventory difference, which when exceeded requires investigation and appropriate action.

(2) Upper warning limit (code 85)—the highest level of inventory difference, which when exceeded requires investigation and appropriate action.

(3) Lower alarm limit (code 86)—the lowest level of inventory difference, which when exceeded requires immediate action.

(4) Upper alarm limit (code 87)—the highest level of inventory difference, which when exceeded requires immediate action.

(5) Redetermination of discrete items on inventory (code 88)—increases or decreases in nuclear material quantities identified by remeasurement or recheck of item counts of material previously reported and entered into the appropriate records. Consult DOE M 474.1-1B and DOE N 471.3 for guidance regarding when a change in item count may result in an incident of security concern.

(6) Redetermination of material in process (code 89)—increases or decreases in nuclear material quantities identified by remeasurement or recheck of item counts of material previously reported and entered into the appropriate records. Increases or decreases typically are the result of one or more of the following.

(a) Substitution of direct measurement of the content of spent fuel as determined in the accountability tank for values based on fuel fabrication data and reactor calculations.

(b) Implementation of improved nondestructive assay (NDA) for measuring items of static inventory for material such as scrap.

(c) Replacement of values obtained by NDA techniques with values obtained from chemical measurements.

(7) Process holdup differences (code 90)—differences between present and previous reporting periods for material that is physically inside equipment but is part of the material flow and is subject to cleanout. This category is not to be used for code 91 material.

(8) Equipment holdup differences (code 91)—differences between present and previous reporting periods for material which adheres so tenaciously to the internal workings of the equipment that it has become, in effect, part of the equipment or requires special treatment to remove. This category is not to be used for code 90 materials.

(9) Measurement adjustment (code 92)—problems associated with measurement control and calibration. Applies when—

(a) the measurement control program has detected a bias not previously identified or a revised bias for which no allowance was made during physical inventory and

(b) measurements are made on the basis of factors or averages that are subject to updating by the measurement control program.

(10) Rounding (code 93)—accumulated fractional quantities of SNM dropped from or added to the values reported to DOE/NNSA in accordance with the reporting units required.

(11) Adjustments to prior recording and reporting errors (code 94)—errors detected in record keeping and reporting functions such as errors in—

(a) arithmetic,

(b) transposition and other recording, and

(c) transmission of data to the NMMSS.

(12) Shipper-receiver adjustments (code 95)—the receiver's adjustment to quantities of SNM originally entered at shipper's values. Included in this category are adjustments resulting from —

(a) remeasurement of waste sent to burial,

(b) identification of material formerly reported as a NOL and subsequently found, and

(c) measurement differences derived from items received from sites which do not have measurement capability (e.g., items shipped from the Pantex Site or from other facilities to a recovery site where a difference between the shipping site's book value and the recipient's measurement value is found). For further guidance regarding shipper-receiver differences, i.e., the determination of when a shipper-receiver difference might be significant, see DOE M 474.1-1B.

(13) Identifiable item adjustments (code 96)—identifiable items not found through inventory or identifiable items returned to inventory control. Consult DOE M 474.1-1B and DOE N 471.3 for guidance regarding when a change in item count or an adjustment may result in an incident of security concern.

(14) Actual inventory difference (code 97)—the algebraic difference between the actual and the explained inventory difference.

(15) Material unaccounted for (code 99)—any portion of the actual inventory difference that falls outside established control limits. For reporting purposes, a value of the actual inventory difference that falls within the

control limits will be deemed to be evidence that no diversion or theft has occurred.

b. Signs of Quantities Reported. In calculating and reporting inventory difference and explanation data, the following rules will be observed.

(1) A quantity will be reported as positive if it equals the amount that the ending physical inventory records is less than corresponding book inventory (e.g. Book Inventory - Physical Inventory). A positive number indicates a lesser amount physically in inventory than indicated by the books.

(2) A quantity will be reported as negative if it equals the amount that the ending physical inventory records is greater than the corresponding book inventory. A negative number indicates a greater amount physically in inventory than indicated by the books.

(3) Record negative quantities by placing a minus sign in the column preceding the first digit.

c. Detailed Instructions. The following procedure will be used to report inventory difference explanation data on DOE/NRC F 741.

(1) Transaction Identification. Enter transaction identification data exactly the same way as recorded on the DOE/NRC F 741 to document the inventory difference, except that code letter I will be entered in the action code field.

(2) General Information. Entries are required for number of data lines (block 11), action date (block 20) and, if appropriate, RIS for account (block 13b or 14b). The action date will be the same as the action date on the DOE/NRC F 741 documenting the inventory difference that is now being explained.

(3) Detail Information. Enter data in the following fields, according to the rules given in the general instructions for use of DOE/NRC F 741.

(a) Line number.

(b) Type of inventory difference. Enter the appropriate 2-digit code as listed above.

(c) Project number (optional).

(d) Material type.

(e) Owner code.

(f) Element weight.

(g) Weight % isotope.

(h) Isotope weight.

7. PREPARATION OF DOE/NRC F 742C. The instructions that follow correspond to those data fields and columns appearing on DOE/NRC F 742C. To obtain instructions for electronic reporting, contact the NMMSS operator. Whether reporting electronically or by DOE/NRC F 742C, the following instructions apply.

a. **Block 1, Name and Address**. Enter reporting facility information.

b. **Block 2, DOE/NRC Form 740M Attached**. Check the appropriate box.

c. **Block 3, RIS**. Enter the RIS of the reporting facility.

d. **Block 4, Inventory Date**. Enter the ending date on which the MBR is based.

e. **Block 5, Process Code**. Leave blank.

f. **Block 6, Correction ID**. Leave blank.

g. **Block 7, License Numbers**. Leave blank.

h. **Block 8, Batch Data**.

(1) **Block 8a, Material Type**. Enter the material type code that reflects the material assay range unless the material is being reported under one of the following categories.

(a) Losses—Weapons and Nonweapons [42 U.S.C. §2121(b), Material]. For material reported by assay range, use the appropriate material type code from Table XV-19.

(b) Losses—42 U.S.C. §2121(c) Material. For material reported by assay range, use the appropriate material type code from Table XV-19.

(c) Scrap Data (Lines 971–974). If reporting scrap generated onsite, recovered onsite, recategorized onsite, or declared to the Central Scrap Management Office, use the appropriate material type code from Table XV-19.

(2) **Block 8b, Comp/Fac Code**. Enter the appropriate codes from the Tables in Chapter XV.

(3) **Block 8c, Element Weight**. Enter element weights as per the instructions in Chapter XI for DOE/NRC F 742.

(4) **Block 8d, Isotope Weight**. Enter isotope weights as per the instructions in Chapter XI for DOE/NRC F 742.

(5) **Block 8e, DOE/NNSA Project Number**. Make no entry unless reporting DOE/NNSA owned material.

(6) **Block 8f, Scrap Program**. Leave blank.

(7) **Block 8g, Weight Percent Isotope**. Leave blank.

(8) **Block 8h, Owner Code**. Enter the appropriate code from Table XV-3.

(9) **Block 8i, Sequence Number**. Enter the line sequence numbers consecutively. Do not repeat or skip numbers.

(10) **Block 8j, Batch Name**. No entry required. Can be used locally by reporting facility.

(11) **Block 8k, Number of Items**. Leave blank.

(12) **Block 8l, Key Measurement Point**. Leave blank.

(13) **Block 8m, Measurement ID** (Measurement Basis, Other Measurement Point, Measurement Method). Leave blank.

(14) **Block 8n, Entry Status**. Leave blank.

(15) **Block 8o, MBA**. Leave blank.

(16) **Block 8p, Site/Item Description Code**. Leave blank.

i. **Block 9, Totals**. Enter the total inventory reported in the above categories. This total must agree with the sum of the quantities entered on Line 80 and 81 on the DOE/NRC F 742.

j. **Block 10, Signature**. The report, if submitted as a hard copy, will be signed by an authorized representative of the facility.

k. **Block 11, Title**. Enter the title of the person submitting the report.

l. **Block 12, Date**. Enter the date the report was submitted.

8. DISTRIBUTION OF DOE/NRC F 742C DATA. Provide the physical inventory listing to the NMMSS and to others as specified by the cognizant field element or site office.

CHAPTER XIV. INVENTORY REPORTING— FACILITIES SELECTED BY THE IAEA

1. INTRODUCTION. Special procedures must be used to implement some of the reporting requirements of the U.S./IAEA Safeguards Agreement. This chapter provides instructions for facilities that have been selected either under the terms of the U.S./IAEA Safeguards Agreement or Protocol. Such facilities should note that all requirements and procedures in the main body of this Manual apply, in addition to the special requirements of this chapter. Refer to Chapter XIII for specific data entry instructions.

2. BATCH FORMATION AND NAMING.

   a. The U.S./IAEA Safeguards Agreement requires inventories to be reported at the batch level of detail (see batch definition in Chapter XVII).

   b. The nuclear material may be in bulk form or contained in a number of separate items. Typical batches for inventory reporting are given in facility attachments or transitional facility attachments.

   c. In general, all of the data for one batch will be entered on one line of DOE/NRC F 742C. Material in any one batch must have only one value for the following elements:

      (1) batch identification;

      (2) number of items;

      (3) inventory composition code;

      (4) key measurement point; and

      (5) measurement identification (i.e., measurement basis, other measurement point, and measurement method).

   d. If a batch has more than one value for any other data element, the data should be listed on two or more lines, with all data elements completed for each line, even if this requires that some batch data be repeated.

   e. A typical case where two lines would be required for the data on one batch would be a batch of irradiated fuel containing both uranium and plutonium. In this case, one line would be used for the uranium data, and a second for the plutonium data. The two lines should have identical entries for all data elements except for project number (if applicable), material type code, element weight, weight percent isotope, and isotope weight.

CHAPTER XV. NUCLEAR MATERIAL REPORTING— DATA ITEMS SUMMARY TABLES

1. INTRODUCTION. The following are explanatory comments regarding the data item tables. This chapter provides shorthand tables to further assist personnel in determining the information needed for nuclear material reporting.

2. DATA ITEMS EXPLANATORY NOTES.

   a. General. RISs used and for/to accounts are as follows.

      (1) ANY—any RIS except DoD RISs,

      (2) CON—any contractor RISs,

      (3) LIC—licensee RISs,

      (4) FOR—foreign RISs,

      (5) CONV—contractor V RISs,

      (6) SEP for isotopic separation facility RISs, and

      (7) DoD for Department of Defense RISs.

   b. For additional instructions, See Table XV-8.

3. ACCOUNTABLE QUANTITIES, MATERIAL TYPES AND OTHER INFORMATION NEEDED FOR REPORTING.

[1 2 3 4 5 6] Table XV-1. Nuclear Material Reporting Units and Characteristics.

Name of Material	MT Code	Reporting Weight Unit Report to Nearest Whole Unit	Element Weight	Isotope Weight	Isotope Weight %
Depleted Uranium	10	Whole Kg	Total U	U-235	U-235
Enriched Uranium	20	Whole Gm	Total U	U-235	U-235
Plutonium-242[1]	40	Whole Gm	Total Pu	Pu-242	Pu-242
Americium-241[2]	44	Whole Gm	Total Am	Am-241	–
Americium-243[2]	45	Whole Gm	Total Am	Am-243	–
Curium	46	Whole Gm	Total Cm	Cm-246	–
Berkelium	47	Whole Microgram	–	Bk-249	–
Californium	48	Whole Microgram	–	Cf-252	–
Plutonium	50	Whole Gm	Total Pu	Pu-239+Pu-241	Pu-240
Enriched Lithium	60	Whole Kg	Total Li	Li-6	Li-6
Uranium-233	70	Whole Gm	Total U	U-233	U-232 (ppm)
Normal Uranium	81	Whole Kg	Total U	–	–
Neptunium-237	82	Whole Gm	Total Np	–	–
Plutonium-238[3]	83	Gm to tenth	Total Pu	Pu-238	Pu-238
Deuterium[4]	86	Kg to tenth	D_2O	D_2	
Tritium[5]	87	Gm to hundredth	Total H-3	–	–
Thorium	88	Whole Kg	Total Th	–	–
Uranium in Cascades[6]	89	Whole Gm	Total U	U-235	U-235

[1] Report as Pu-242 if the contained Pu-242 is 20 percent or greater of total plutonium by weight; otherwise, report as Pu 239-241.

[2] Americium contained in plutonium as part of the natural in-growth process should not be accounted for as another reportable material until it is separated from the plutonium###The exception to this requirement is when the material with Americium ingrowth is to be shipped to a burial site###See Chapter IV for further information.

[3] Report as Pu-238 if the contained Pu-238 is 10 percent or greater of total plutonium by weight; otherwise, report as plutonium Pu 239-241.

[4] For deuterium in the form of heavy water, both the element and isotope weight fields will be used; otherwise, report isotope weight only.

[5] Tritium contained in water (H_2O or D_2O) used as a moderator in a nuclear reactor is not an accountable material

[6] Uranium in cascades is treated as enriched uranium and should be reported as material type 89.

[12]Table XV-2. Nuclear Material Type Codes.

Type Code	Type Description	Reporting Unit
	Uranium Depleted in U-235	
10	Total	
11	<0.21% U-235	kg
12	0.21 to < 0.24% U-235	kg
13	0.24 to < 0.26% U-235	kg
14	0.26 to < 0.28% U-235	kg
15	0.28 to < 0.31% U-235	kg
16	0.31 to < 0.50% U-235	kg
17	0.50 to < 0.60% U-235	kg
18	0.60 to <0.710% U-235	kg
	Uranium Enriched in U-235	
20	Total	
21	> 0.712 to < 0.90% U-235	gm
22	0.90 to < 1.15% U-235	gm
23	1.15 to < 1.60% U-235	gm
24	1.60 to < 2.00% U-235	gm
25	2.00 to < 2.60% U-235	gm
26	2.60 to < 2.90% U-235	gm
27	2.90 to < 3.10% U-235	gm
28	3.10 to < 3.40% U-235	gm
29	3.40 to < 3.90% U-235	gm
30	3.90 to < 4.10% U-235	gm
31	4.10 to < 5.00% U-235	gm
32	5.00 to < 10.00% U-235	gm
33	10.00 to < 20.00% U-235	gm
34	20.00 to < 35.00% U-235	gm
35	35.00 to < 45.00% U-235	gm
36	45.00 to < 80.00% U-235	gm
37	80.00 to < 92.00% U-235	gm
38	92.00 to < 94.00% U-235	gm
39	94.00% and above U-235	gm
	Plutonium 242	
40	Total	gm
41	20% thru 60%	gm
42	> 60%	gm

Type Code	Type Description	Reporting Unit
44	Americium 241	gm
45	Americium 243	gm
46	Curium	gm
47	Berkelium	microgram
48	Californium	microgram
	Plutonium	
50	Total	gm
51	< 4.00% Pu-240	gm
52	4.00 < 7.00% Pu-240	gm
53	7.00 < 10.00% Pu-240	gm
54	10.00 < 13.00% Pu-240	gm
55	13.00 < 16.00% Pu-240	gm
56	16.00 < 19.00% Pu-240	gm
57	19.00% and above Pu-240	gm
	Lithium Enriched in Li-6	
60	Total	kg
61	> Normal (7.42%) to < 55.00%	kg
62	55.00 to < 80.00%	kg
63	80.00% and above	kg
	Uranium Enriched in U-233	
70	Total	gm
71	< 5 ppm U-232	gm
72	5 to < 10 ppm U-232	gm
73	10 to < 50 ppm U-232	gm
74	50 ppm and above U-232	gm
81	Normal U Total (0.711% U-235)	kg
82	Np 237 Total	gm
83	Pu 238 Total	gm to tenth
86	D_2 Total	kg to tenth
87	Tritium Total	gm to hundredth
88	Thorium Total	kg
89	U in Cascades Total	gm
90	This series is available for local use	

[1] For operational reasons, NMMSS will accept a range from .710% to .712% for Material Type 81. This does not, however, redefine or change the definition of "Normal U" as contained in the Safeguards and Security Glossary of terms in DOE O 470.1 *Safeguards and Security Program.*

Table XV-3. Owner Codes.

Owner Code	Type of Ownership of Material
G	U.S. Government owned material
J	All other non U.S. Government owned material

Table XV-4. Inventory Difference Categories.

Inventory Difference Category	Explanation of Inventory Difference
84	Lower Warning Limit
85	Upper Warning Limit
86	Lower Alarm Limit
87	Upper Alarm Limit
88	Redetermination of Discrete Items of Inventory
89	Redetermination of Material in Process
90	Process Holdup Differences
91	Equipment Holdup Differences
92	Measurement Adjustments
93	Rounding
94	Adjustments to Prior Recording and Reporting Errors
95	Shipper—Receiver Adjustments
96	Identifiable Item Adjustments
97	Actual Inventory Difference
99	Material Unaccounted for

Table XV-5. Half Life and Daily Decay Factors.

Radioactive Half-life and Decay Constants. *Source*: Brookhaven National Laboratory, National Nuclear Data Center, Nuclear Wallet Cards, 6th Edition, January 2000				
Element	**Isotope**	**Half-Life**	**Standard Deviation**	**Daily Decay Constant (days^{-1})**
Americium	241	432.200 y	0.700 y	0.000004
Curium	242	162.800 d	0.200 d	0.0042568
Curium	244	18.100 y	0.020 y	0.00010483
Berkelium	24	330.000 d	4.000 d	0.0021
Californium	252	2.645 y	0.008 y	0.00071734
Plutonium	238	87.700 y	0.300 y	0.0000216
Plutonium	241	14.290 y	0.006 y	0.00013278
Hydrogen (Tritium)	3	12.330 y	0.060 y	0.00015388

[1]Table XV-6. Decay Factors for Monthly Reporting Periods.

			Decay Factors for Months—Days in Month			
Element	**Isotope**	**Deduct From**	**28**	**29**	**30**	**31**
Americium	241	E&I	0.0001	0.00013	0.0001	0.0001
Curium	242	E only	0.119215	0.123472	0.12773	0.131978
Curium	244	E only	0.00294	0.003041	0.00315	0.00325
Berkelium	249	I only	0.05881	0.060913	0.063013	0.065114
Californium	252	I only	0.02009	0.020807	0.021525	0.022242
Plutonium	238	E&I	0.0006	0.00063	0.0006	0.0007
Plutonium	241	E&I	0.00372	0.003851	0.00398	0.00412
Hydrogen (Tritium)	3	E only[1]	0.00431	0.004464	0.00462	0.00477

[1] "E only" means that the calculated Decay Weight is to be deducted from the Element Weight. "I only" means that the calculated Decay Weight is to be deducted from the Isotope Weight. "E&I" means that the calculated Decay Weight is to be deducted from the weights of both Element and Isotope.

[1] Table XV-7. Decay Factors for Quarterly Reporting Periods.

Element	Isotope	Deduct From[1]	Decay Factors for Quarters—Days in Quarter			
			89	90	91	92
Americium	241	E&I	0.0004	0.0004	0	0.0004
Curium	242	E only	0.378932	0.383189	0.387447	0.391705
Curium	244	E only	0.00933	0.00944	0.0095	0.00965
Berkelium	249	I only	0.18694	0.18904	0.191141	0.193241
Californium	252	I only	0.063857	0.064575	0.06529	0.06601
Plutonium	238	E&I	0.00193	0.00195	0.002	0.00199
Plutonium	241	E&I	0.01182	0.011952	0.01209	0.012218
Hydrogen (Tritium)	3	E only	0.013698	0.013852	0.01401	0.01416

For tables XV-8 and XV-9, the following notes apply. Within the tables, specific numbers are shown in parentheses to highlight some of the following notes.

(1) For those transaction types where there is a difference between shipper's and receiver's reporting requirements, an S and an R will exist in this column to reflect the differences. Only those data items which have different requirements will be separated into the S row and R row. All other common data items will exist on the row between the S and R.

(2) When to licensee, shipper RIS may be ANY, receiver RIS must be LIC. When from licensee, receiver RIS may be ANY, shipper RIS must be LIC.

(3) For and to accounts must both contain contractor RIS when owner is G, there is no change in ownership, and shipper and/or receiver have licensee or foreign RIS. RISs identify the DOE contractors having programmatic responsibility for the material before and after shipment.

(4) DOD or mutual defense side of entry is not applicable.

(5) Must contain a regular DOD RIS or a valid Q military installation RIS to reflect points of first destination for DOD receipts or pickup points for DOD returns.

(6) Required only when shipper has a licensee or foreign RIS; then it must be contractor RIS.

(7) Must be licensee RIS if shipper owner code is A or B, foreign entity RIS if shipper owner code is S.

(8) Must be licensee RIS if receiver owner code is A or B, foreign entity RIS if receiver owner code is S.

(9) For/to accounts cannot be equal.

(10) For/to accounts must be equal.

(11) Required only when receiver has a licensee or foreign RIS; then it must be contractor RIS.

(12) Appropriate licensee or foreign RIS in the for account if shipper's owner code is an A, B, or S; contractor in the for account if shipper's owner code is G and shipper has a licensee or foreign RIS; the field is blank otherwise.

(13) Shipper or receiver RIS must be in the V series.

(14) Appropriate licensee or foreign RIS in the to account if receiver's owner code is an A, B, or S; contractor in the to account if receiver's owner code is G and receiver has a licensee or foreign RIS; the field is blank otherwise.

(15) QZA, QZB, and QZD are restricted to material types 20, 40, 50, 70, and 83.

(16) If the DOD's RIS is QZE the Inventory Change code will be deemed to be either 14 or 44; if the RIS is QZC the IC code will be either 15 or 45; if the RIS is QZA, QZB, or QZD the IC code will be either 16 or 46.

Table XV-8. Instructions for Preparation of Transaction Data Items.

Transaction Type	S/R (1)	TI Code	S RIS	R RIS	For Account	To Account	Owner Code Required
1. DOE/NNSA-owned material; transfer between contractors		Blank	CON	CON	Blank	Blank	G
2. Transfer of non-DOE/NNSA-owned		Blank	ANY	ANY	Blank	Blank	J
3. DOE/NNSA-owned project material transfers to/from licensees (non-lease or loan)		Blank	-2	(2)	(3)	(3)	G
4. Initiates loan/lease of DOE/NNSA-owned material	S	A	ANY	ANY	(6)	LIC, FOR	G
	R	A	ANY	ANY	(6)	LIC, FOR	G
5. Transfer of leased/loaned material; change in financial responsibility		B	ANY	ANY	(7,9)	(8,9)	G,J
6. Transfer of leased/loaned material; no change in financial responsibility	S	C	ANY	ANY	(7,10)	(7,10)	G,J
	R	C	ANY	ANY	(8,10)	(8,10)	G,J
7. Leased/loaned material returned to DOE/NNSA for credit	S	D	ANY	ANY	LIC, FOR	(11)	G,J
	R	D	ANY	ANY	LIC, FOR	(11)	G,J
8. Sale for account of DOE/NNSA	S	E	ANY	ANY	(12)	LIC, FOR	G,J
	R	E	ANY	ANY	(12)	LIC, FOR	J
9. Enriching service procurement (feed receipt)	S	F	ANY	SEP	LIC, FOR	Blank	J
	R	F	ANY	SEP	LIC, FOR	Blank	J
10. Enriching service sale (product shipment)	S	F	SEP	ANY	Blank	LIC, FOR	J
	R	F	SEP	ANY	Blank	LIC, FOR	J
11. Procurement of privately owned material by DOE/NNSA	S	G	ANY	ANY	LIC, FOR	(11)	J
	R	G	ANY	ANY	LIC, FOR		G,J
12. Donated material to others by DOE/NNSA		R	(Same requirement as transaction Type 8)				
13. Donated material to DOE/NNSA by others		S	(Same requirement as transaction Type 11)				
14. In-place transactions	In-place transaction should change ownership. Use data requirements of applicable transaction type as a guide. Shipper and receiver must be same RIS.						
15. In-place project transfer	Shipper and receiver must be same RIS. Use DOE Form DOE/NRC F 741.						
16. Exports; shipments to foreign countries ® RISs)	Transactions are prepared in the same manner as transfers to/from licensees except reporting entity must report both sides.						
17. Imports; receipts from foreign countries ® RISs)	Transactions are prepared in the same manner as transfers to/from licensees except reporting entity must report both sides.						
18. Inventory changes—removal		Blank	ANY	ANY	(12)	Blank	G, J
19. Inventory changes—receipt		Blank	ANY	ANY	Blank	(14)	G, J
20. Transfers involving waste facilities (V RISs)		Blank	(13)	(13)	Blank	Blank	G, J
21. Shipper or receiver adjustment	Must have an entry in correction field (block 4). Used to correct prior entries, therefore, prepare the adjusting entry using the same guidelines as the original entry for data records numbers 2 and 5, back out the original line entry in error and add the correct entry. Any of the permissible owner codes for the applicable transaction type will be accepted independently without the presence of a required owner code.						

Table XV-9. Instructions When Either the DoD or Mutual Defense Is Involved.

	S RIS	R RIS	TI Code	Action Code	For Account	To Account	Owner Code Required
1. Transfer to DoD (4, 16)	CON	DoD (15)	Blank	A, C	Blank	(5)	G
2. Transfer from DoD (4, 16)	DoD	CON	Blank	B, D, E	(5)	Blank	G
3. Transfer from DoD (16)	DoD	DoD (16)	Blank	M	Blank	Blank	G
4. Transfer to Mutual Defense; Loan/Lease	CON	QZF or QZG	A	A, C	Shipper	Shipper	G
5. Transfer to Mutual Defense; Return of Loaned Material	CON	QZF or QZG	Blank	Blank	Receiver	Receiver	J
6. Transfer to Mutual Defense; Sale	CON	QZF or QZG	E	Blank	Blank	Receiver	G
7. Transfer from Mutual Defense; Loan of Material	QZF or QZG	CON	Blank	B, D, E	Shipper	Shipper	J
8. Transfer from Mutual Defense; Return of Loaned/Leased Material	QZF or QZG	CON	D	B, D, E	Receiver	Receiver	G
9. Transfer from Mutual Defense; Sale to DOE/NNSA	QZF or QZG	CON	Blank	B, D, E	Blank	Receiver	J

Table XV-10. Processing Code (PC).

Processing Code (PC)	Block 5
A	Entry of new data set
C	Replacement of data set
D	Deletion of data set

[1 2 3 4] Table XV-11. Action Code (AC).

Action Code (AC)	Block 6
A	Shipper's original data
B	Receiver's data accepting shipper's weights without measurement
C	Shipper's adjustment or acknowledgment
D	Receiver's adjustment or acknowledgment
E	Receiver's independent measurement or determination
I	Inventory difference explanation data
J[1]	Receiver's interim data reporting material in transit or project receipts
M	One-party transaction
N[2]	Known delay in receiver reporting of at least 10 days but less than 30 days
P	In-place transfers between projects
R	Identifies a one-party transaction to remove the WR obligation on material.
S[3]	Receiver's data accepting shipper's weights under a safeguards closure
T	Contested weights
U[4]	Known delay in receiver reporting of at least 30 days
X	Shipper's side of an obligation exchange
Y	Receiver's side of an obligation exchange

Table XV-12. Nature of Transaction Code (TI).

Nature of Transaction Code (TI)	Block 11
A	Initiates loan/lease
B	Transfers loan/lease
C	Transfer of leased/loaned material with no change in loan/lease responsibility
D	Return of leased/loaned material to DOE/NNSA for credit
E	Sale for DOE/NNSA
F	Pursuant to an enriching service agreement
G	Sale to DOE/NNSA
R	Transfer from Government to private inventory other than by sale or enriching service agreement
S	Transfer from private to Government inventory other than by sale or enriching service agreement

[1] Action code J identifies receiver's interim reporting of project receipt of DOE/NNSA production or research materials that are in transit at the end of the month or that have been received but not reported. A transaction with action code J must be followed with action code B, E, or S.

[2] A transaction with action code N must be followed with action code B, E, or S. Note: NRC defines action code N differently from DOE/NNSA, and NRC does not use action code S.

[3] Safeguards closure only for certain facilities. Restricted to DOE sites, owner code G, shipper and receiver can't be the same, TI is blank, can't use with a V RIS, and detail lines are reported.

[4] A transaction with action code U must be followed with action code B, E, or S.

Table XV-13. Inventory Change Code—Receipts.

Inventory Change Code	Blocks 26c and 27c Other Receipts
11	Procurement from DOE/NNSA
13	Purchase Procurement—For Account of DOE/NNSA
14	DoD Returns—Use A
15	DoD Returns—Use B
16	DoD Returns—Other Uses
21	Production
22	From Other Materials
30	Receipts reported to DOE/NRC on DOE/NRC F 741 (not listed elsewhere)
34	Receipts—Miscellaneous
37	Procurement by Others
38	Donated Material—from DOE/NNSA to Others
39	Donated Material—from Others to DOE/NNSA

Table XV-14. Inventory Change Code—Removals.

Inventory Change Code	Blocks 26c and 27c Other Removals
41	Expended in Space Programs
42	Sales to DOE/NNSA
43	Sales to Others for the Account of DOE/NNSA
44	DoD—Use A
45	DoD—Use B
46	DoD—Other Uses
47	Expended by DOE/NNSA Tests
48	Routine Tests
51	Shipments reported to DOE/NRC on DOE/NRC F 741(not listed elsewhere)
54	Shipments - Miscellaneous
58	Donated Material—to DOE/NNSA by Others
59	Donated Material—to Others by DOE/NNSA
65	Rounding Bias (used for A-M transactions)
71	Degradation to Other Materials
72	Decay
73	Fission and Transmutation
74	Normal Operational Losses/Measured Discards
75	Accidental Losses
76	Approved Write-offs
77	Inventory Differences

Table XV-15. Inventory Change Code—Inventory Difference Explanations.

Inventory Change Code	Blocks 26c and 27c Inventory Difference Explanations
84	Lower Warning Limit
85	Upper Warning Limit
86	Lower Alarm Limit
87	Upper Alarm Limit
88	Redetermination of Discrete Items in Inventory
89	Redetermination of Material in Process
90	Process Holdup Differences
91	Equipment Holdup Differences
92	Measurement Adjustments
93	Rounding (used for A-I transactions)
94	Adjustments to Prior Recording and Reporting Errors
95	Shipper—Receiver Adjustments
96	Identifiable Item Adjustments
97	Actual Inventory Difference
99	Material Unaccounted For

Table XV-16 Material Type Codes and IAEA Element Codes—Import Export.

Description	U.S. Material Type Code	IAEA Element Code
Depleted Uranium	10	D
Enriched Uranium	20	EG
Plutonium	50	P
Normal Uranium	81	N
Thorium	88	T
All Others	(All Other Codes)	(Blank)

Table XV-17. Foreign Obligation Codes.

Country/Entity	Obligation Codes[1]
31	Australia
32	Canada
33	EURATOM
34	Japan
35	Peoples Republic of China
36	Czech Republic
91	Australia and EURATOM
92	Canada and EURATOM
WR	Former Soviet Union Weapons

1

[1] NOTE: For any other obligation codes not included above, contact the NMMSS Operator for further instructions.

[1] Table XV-18. Material Type Codes, IAEA Element Codes, and Quantities for Source and SNM—Obligations Tracking.

Type	Domestic Code	IAEA Code	Reportable Obligated Quantity [1]
Natural Uranium	MT 81	N	Kilogram Uranium
Depleted Uranium	MT 10	D	Kilogram Uranium
Thorium	MT 88	T	Kilogram Thorium
Plutonium	MT 50	P	Gram Plutonium
High Enriched Uranium	MT 20 ≥ 20%	EG	Gram Total Uranium for Element Gram U-235 for Isotope
Low Enriched Uranium	MT 20 < 20%	EG	Gram Total Uranium for Element Gram U-235 for Isotope
Uranium-233	MT 70	EK	Gram Total Uranium for Element Gram U-233 for Isotope

Table XV-19. Material Type Codes Used For Specific Circumstances.

	Name of Material	Material Type Code
Losses—Weapons and Nonweapons (See 42 U.S.C. §2121(b) Material)	Uranium-Depleted in U-235	11
	Uranium-Enriched in U-235	21
	Plutonium	51
	Lithium-Enriched in Li-6	61
	Uranium-Enriched in U-233	71
Losses (See 42 U.S.C. §2121(c) Material)	Uranium-Depleted in U-235	11
	Uranium-Enriched in U-235	21
	Plutonium	51
	Lithium-Enriched in Li-6	61
	Uranium-Enriched in U-233	71
Scrap Data	Uranium-Depleted in U-235	10
	> 0.711% to < 10.00%	21
	10.00% and above	33
	Plutonium	51
Total—Inventory Data	Uranium-Depleted in U-235	10
	Uranium-Enriched in U-235	20
	Plutonium-242	40
	Plutonium	50
	Lithium-Enriched in Li-6	60
	Uranium-Enriched in U-233	70

[1] For foreign obligations tracking, only the element weight is required except for uranium enriched in U-235 or U-233.

Table XV-20. Variable Tails Assay Option Code.

Code	Definition
Blank[1]	.20
A	.30
B	.25
C	.20
D	.16
E	.17
F	.18
G	.19
H	.21
I	.22
J	.23
K	.24
L	.26
M	.27
N	.28
O	.29
P	.31
Q	.32
R	.33
S	.34
T	0.35

Table XV-21. Inventory Change Type (ICT) Codes—IAEA.

ICT Code	From Balance	To Balance
DN	Depleted Uranium	Normal Uranium
DE	Depleted Uranium	Enriched Uranium
ND	Normal Uranium	Depleted Uranium
NE	Normal Uranium	Enriched Uranium
ED	Enriched Uranium	Depleted Uranium
EN	Enriched Uranium	Normal Uranium

Table XV-22. DOE/NNSA Contractor Reporting Procedure for Normal Operational Losses/Measured Discards and Accidental Losses.

Types of Transactions		Action Code		Applicable to (Type of Facility)	Description from Viewpoint Of the Facility	Inventory Change Code (use code)		Project Number		Data Generated By NMMSS
Shipper (S)	Receiver (R)	S	R			S	R	S	R	
Facility RIS with H, I, L appended	Facility RIS with H, I, L appended	M (one single party entry)		1. Non-Lic DOE/NNSA contr. (non-IAEA) 2. FAC under IAEA 3. Lic contr.	Material written off to reflect internal changes to waste disposition areas inventory—removed from facility's inventory	Single entry: 65, 72, 76, 77		Single entry: not required		None
Facility is same as Receiver	Facility is same as Shipper	M (one single party entry)		1. Non-Lic DOE/NNSA contr. (non-IAEA)	NOL/MD/AL not to atmosphere, or ground and not coincident with transfer to burial site—removed from facility's inventory	Single entry: 74, 75 or 48		Single entry: req. if G owner code		None
Facility RIS	Facility RIS with A, G, R appended (same site as Shipper)	A	N/A	1. Non-lic DOE/NNSA contr. (non IAEA) 2. Fac under IAEA 3. Lic contr.	NOL/MD/AL[1] to atmosphere, ground, or consumed in research—removed from shipper's inventory	74, 75 or 48	N/A	Req. for owner code G	N/A	Receiver
Facility RIS	Facility RIS with H, I, L appended (same site as Shipper)	A	N/A	1. Fac. under IAEA 2. Lic. contr. 3. See footnote 3	NOL/MD/AL[1] to a retained waste holding area—removed from shipper's inventory	74, 75	N/A	Req. for owner code G	N/A	Receiver when type fac = 1 or 2 None when type fac = 3
Facility RIS	VVV	A	B/E	1. Non-Licensed DOE/NNSA contractor (non-IAEA) 2. Facility under IAEA 3. Licensed contractor	NOL/MD/AL[1] removed from shipper's inventory coincident with the removal to a burial site	74, 75 or 48	not req. (leave blank)	Req. for owner code G	not req. (leave blank)	None
FAC > VVV		A	B/E[2]	1. Non-Licensed DOE/NNSA contractor (non-IAEA)	Transfer of material to burial site where material previously removed from shipper's inventory by M transaction—no effect to shipper's records	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	None
Facility RIS with H or L appended	VVV	A	B/E[2]	1. Fac. under IAEA 2. Lic. contr. 3. See footnote	Transfer of material from a retained waste holding area to the burial site	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	None

[1 2 3] Table XV-22. (continued)

Types of Transactions		Action Code		Applicable to (Type of Facility)	Description from Viewpoint Of the Facility	Inventory Change Code (use code)		Project Number		Data Generated By NMMSS
Shipper (S)	Receiver (R)	S	R			S	R	S	R	
Facility RIS with I or G appended	VVV	A	B/E[2]	1. Non-Lic. DOE/NNSA contr. (non IAEA) 2. Fac. under IAEA 3. Lic. contr.	Material previously written off as discarded to the ground now being recovered and transferred to a burial site	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	None
Facility RIS with H, I, L appended	Facility RIS (same site as, Shipper)	N/A	B/E[2]	1. Fac. under IAEA 2. Lic. contr. 3. See footnote 3	Transfer of material from a retained waste holding area back to facility's inventory	N/A	N/A	N/A	req. if G owner code	Shipper when type fac = 1 or 2 None when type fac = 3
VVV	Facility RIS	A[2]	B/E	1. Non-Lic. DOE/NNSA contr. (non IAEA) 2. Fac. under IAEA 3. Lic. contr.	Material being retrieved from a burial site for some specific use—increases receiver's inventory	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	req. if G owner code	None
VVV	Facility RIS	A[2]	B/E	1. Non-Lic. DOE/NNSA contr. (non IAEA)	Material previously written off as NOL/MD/AL and transferred to a burial site—now being returned to the facility—NOL REVERSAL	not req. (leave blank)	74, 75 or 48	not req. (leave blank)	req. if G owner code	None
VVV	Facility RIS with A, G, I appended	A[2]	B/E	Burial site shipping is specifically identified contractor's waste disposition area	Material previously written off as NOL/MD/AL[1] and transferred to a burial site—now being dissipated to atmosphere or ground or transferred to an incinerator from burial site—not to be treated as NOL/MD/AL[1]	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	not req. (leave blank)	None

[1] NOL/MD/AL—Normal Operational Loss/Measured Discard/Accidental Loss
[2] For DOE/NNSA burial site, applicable shipper or receiver data is not reported to NMMSS
[3] Reporting under this method is optional for non-licensed DOE/NNSA contractors not under IAEA reporting requirements
FAC = DOE/NNSA contractor facility, VVV = Burial Site
Facility fourth character indicates a discharge to: A = atmosphere, G = ground, H = on-site waste holding area, I = toxic substance control act incinerator, L = lagoon, tank or holding pond, R = consumed in research
NOTE: All other data elements are the same as normal requirements.

CHAPTER XVI. ACRONYMS

ANSI	American National Standards Institute
CFR	Code of Federal Regulations
COEI	Composition of Ending Inventory
CRD	Contractor Requirements Document
DoD	Department of Defense
DOE	Department of Energy
FOIA	Freedom of Information Act
IAEA	International Atomic Energy Agency
ICT	inventory change type
ID	inventory difference
IMI	impact measurement index
INMTS	International Nuclear Materials Tracking System
MBA	material balance area
MBR	material balance report
MC&A	materials control and accountability
MT	material type
NDA	nondestructive assay
NMR	nuclear materials representative
NMMSS	Nuclear Materials Management Safeguards System
NNSA	National Nuclear Security Administration
NOL	normal operational loss
NRC	Nuclear Regulatory Commission
PC	processing code
RIS	reporting identification symbol
SAMS	Safeguards Management Software
SED	shipper's export declaration
SIMEX	Secure Information Management and Exchange Network
SNM	special nuclear materials
TI	transaction indicator
U.S.C.	United States Code
VTAO	variable tails assay option

CHAPTER XVII. DEFINITIONS[1]

Agreement State. Any State within the U.S. with which NRC or its predecessor, AEC, has entered into an agreement under section 274b of the Atomic Energy Act of 1954, as amended.

Accountable Quantity of Nuclear Material. This phrase is sometimes erroneously used to refer to a reportable quantity of nuclear material. The proper term for the reporting of information to NMMSS is a reportable quantity, see below.

Batch. A portion of nuclear material handled as a unit for accounting purposes at a key measurement point and for which the composition and quantity are defined by a single set of specifications or measurements. The batch may be in bulk form or contained in a number of discrete items.

Composition of Ending Inventory (COEI). A characterization of the nuclear material present in inventory based on: chemical form, physical form, and other criteria. For a listing of the COEI codes, contact the NMMSS operator.

Concise Note. Additional nuclear materials transaction, material balance, or inventory data supplied to the International Atomic Energy Agency (IAEA), in free text format, by facilities selected under the provisions of the Agreement between the United States of America and the IAEA for the Application of Safeguards in the U.S./IAEA Safeguards Agreement, and by facilities engaged in the import and/or export of nuclear materials.

Contractor. For the purpose of the this Manual contractor is an entity contracted by the Department of Energy to fulfill nuclear material control and accountability activities as directed by the U.S. Government.

EURATOM. An organization (legal entity) comprised of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom

International Nuclear Materials Tracking System (INMTS). A database and information support system used to manage information on the quantity and location of U.S.-supplied nuclear materials in foreign countries.

License Exempt. A term used in some instances by facilities involved in import/export transactions who are exempt from reporting license information as defined in 10 CFR Part 110.11, Export of IAEA Safeguards Sample.

[1]This listing of definitions is not intended to be exhaustive in nature. For additional definitions, consult the *Safeguards and Security Glossary of Terms* available online at http://directives.doe.gov/libraries/othersources.html.

Mutual Defense Agreement. An agreement for cooperation between the U.S. and other nations for the exchange of nuclear weapon information and/or materials entered into pursuant to section 123 of the Atomic Energy Act of 1954, as amended.

Nuclear Materials Management and Safeguards System (NMMSS). The national database and information system for nuclear materials controlled by the U.S. Government, created to support national safeguards and management objectives in the domestic and foreign utilization of nuclear resources. The system stores data on nuclear material transactions and inventories, and produces a wide range of printed reports for use by DOE/NNSA and NRC. The system is used to satisfy the nuclear materials information requirements of agreements between the U.S. and foreign entities. In addition, the system provides the reporting interface between facilities selected under the provisions of the U.S./IAEA Safeguards Agreement and the IAEA. The system uses a centralized computer database linked via direct data communication lines and the Secure Information Management and Exchange Network (SIMEX) to a number of facilities, DOE/NNSA offices, and NRC offices in the U.S. Information is also provided to other Federal agencies as required.

Nuclear Materials Custodian (NMC). An individual assigned responsibility for the control of nuclear material in a localized area of a facility, i.e., a single material balance area (MBA). The NMC is responsible for keeping the nuclear materials representative apprized of activities within the facility. See also the *Safeguards and Security Glossary of Terms* available on line at directives.doe.gov/libraries/othersources.html.

Nuclear Materials Representative (NMR). Persons assigned responsibility for a facility's RIS who ensure that periodic reports and transactions documents are submitted as required to NMMSS. The duties of the NMR can be delegated per the site or facility materials control and accountability plan. The NMR is responsible for coordinating with the NMC regarding inventories and transactions of nuclear material.

Nuclear Regulatory Commission (NRC). Government agency that regulates U.S. commercial nuclear power plants and the civilian use of nuclear materials.

Obligations Tracking. The tracking of transfers of nuclear material that have been identified as having a foreign accounting obligation attached based on one or more Agreements for Cooperation in the Peaceful Uses of Atomic Energy.

Reportable Quantity of Nuclear Material. The metric units used for submission of reporting information to the NMMSS. (See Table XV-1 and DOE M 474.1-1B, *Manual for Control and Accountability of Nuclear Materials*, dated 6-13-03.) For example, the reportable quantity of depleted uranium is 1 kilogram and for plutonium the reportable quantity is 1 gram.

Reporting Identification Symbol (RIS). A unique combination of three or four letters assigned to each reporting organization by the Office of Plutonium, Uranium and Special Materials Inventory or the Nuclear Regulatory Commission for the purpose of identification in the Nuclear Materials Management and Safeguards System database. Information relating to the construction and interpretation of RISs is contained in Chapter I.

RIS Pairs. A facility with multiple reporting identification symbols (RISs) may arrange with the Nuclear Materials Management and Safeguards System (NMMSS) operator to establish RIS pairs in NMMSS programs. When a shipment from one RIS is made to the second half of a RIS pair, NMMSS will generate the receiver's data.

Sealed Sources. Items that contain small quantities of nuclear material used for specific purposes such as weld radiography, medical diagnostics, well logging, etc. The sealed source may contain small quantities of special nuclear material (SNM) as well as non-SNM isotopes. The sealed source often has a high activity level (measured in curies). For further information see 10 CFR 835, Occupational Radiation Protection.

Special Nuclear Material. Nuclear material as defined in Public Law 83-703, Atomic Energy Act of 1954, as amended. For further description, see DOE M 474.1-1B, *Manual for Control and Accountability of Nuclear Materials*, dated 6-13-03, which contains detailed information regarding the requirements for nuclear materials control and accountability.

Status of Inventory. A reported breakdown (by process, physical, or chemical form) of the physical or book inventory, or a combination thereof, of nuclear materials at a facility during a given time.

Waste. Nuclear material residues that have been determined to be uneconomical to recover.

Waste Disposition Area. An area set aside for either holding nuclear waste, processing nuclear waste, or preparing nuclear waste for transport.

Waste Management Site. A site or facility, or part of a site or facility, that has been designated by DOE as managed by the Office of Environmental Management (EM).

91-B Material. The President from time to time may direct the delivery of quantities of special nuclear material to the Department of Defense. In NMMSS reporting, 91-B material refers to material transfers to the Department of Defense for use in national defense.

91-C Material. The President may authorize cooperation with another nation to transfer nuclear material to that nation by sale, lease, or loan for military applications.

CHAPTER XVIII. FORMS

The following images are examples of the paper forms that can be used for data submission to the NMMSS. However, electronic submission of data is the required method unless manual submission is coordinated with the cognizant field element or site office or the Office of Plutonium, Uranium and Special Materials Inventory. The forms are for illustrative and instructional purposes. Do not print out these forms and use them to submit data to NMMSS. The correct copies of the forms to use to submit data to the NMMSS are available for download in portable document format (PDF) from the NMMSS operator or from http://directivesdoe.gov/forms/index.htm.

DOE/NRC FORM 740M
(5-2002)
MANDATORY DATA COLLECTION
AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150,
Public Laws 83-703, 93-438, 95-91

U.S. DEPARTMENT OF ENERGY
AND
U.S. NUCLEAR REGULATORY COMMISSION

CONCISE NOTE

APPROVED BY OMB: NO. 3150-0057 **EXPIRES: 05/31/2005**

Estimated burden per response to comply with this mandatory collection request: 45 minutes. This information is required to satisfy the provisions of the US/IAEA Safeguards Agreement. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0057), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. NAME			2. ATTACHMENT TO: ☐ A. DOE/NRC 741 ☐ B. DOE/NRC 742 ☐ C. DOE/NRC 742C				3. RIS	4. REPORTING PERIOD FROM	TO
STREET ADDRESS			5. TRANSACTION DATA					6. REPORTING DATE	
			A. SHIPPER'S RIS	B. RECEIVER'S RIS	C. TRANSACTION NUMBER	D. CORR. NUMBER	E. PC	F. AC	
CITY	STATE	ZIP CODE							

7A. LINE NO.	7B. ENTRY REFERENCE	7C. TEXT OF CONCISE NOTE

To the best of my knowledge and belief, the information given above and in any attached schedules is true, complete, and correct.

8. SIGNATURE (See instructions [NUREG/BR-0006] for provisions regarding confidentiality)	9. TITLE	10. DATE

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

DOE/NRC FORM 741
(5-2002) Previous editions are obsolete
MANDATORY DATA COLLECTION
AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150,
Public Laws 83-703, 93-438, 95-91

U.S. DEPARTMENT OF ENERGY
AND
U.S. NUCLEAR REGULATORY COMMISSION

NUCLEAR MATERIAL TRANSACTION REPORT

APPROVED BY OMB: NO. 3150-0003 EXPIRES: 05/31/2005

Estimated burden per response to comply with this mandatory collection request: 45 minutes. This information is required for IAEA accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0003), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. SHIPPER'S R/S	2. RECEIVER'S R/S	3. TRANSACTION NO.	4. CORRECTION NO.	5. PROCESSING CODE a. SHIPPER	5. PROCESSING CODE b. RECEIVER	6. ACTION CODE a. SHIPPER	6. ACTION CODE b. RECEIVER	7. DOCUMENTATION (Only if document is classified SECRET) PAGE	OF	PAGES	COPY	OF	COPIES	SERIES

8a. NAME AND ADDRESS OF SHIPPER	b. LICENSE NO.	9a. NAME AND ADDRESS OF RECEIVER	b. LICENSE NO.	10. NO OF DATA LINES	11. NATURE OF TRANSACTION
c. ATTENTION: d. TELEPHONE:		c. ATTENTION: d. TELEPHONE:		12a. SHIPPED FOR ACCOUNT OF	b. R/S
				13a. SHIPPED TO ACCOUNT OF	b. R/S

NO.	DISTRIBUTION OF COPIES
1	
2	
3	
4	
5	
6	
7	
8	
9	

14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER

15. EXPORT OR IMPORT TRANSFERS: LICENSE NO.

16. MATERIAL TYPE AND DESCRIPTION

17. LINE NUMBER	18. COUNTRY OF OBLIGATION	19. MATERIAL TYPE	20. OBLIGATED ELEMENT WEIGHT	21. OBLIGATED ISOTOPE WEIGHT For Enriched Uranium Only

22. ACTION DATE	MONTH (MM)	DAY (DD)	YEAR (YYYY)
a. SHIPMENT			
b. SHIPPER'S CORRECTION			
c. RECEIPT			
d. RECEIVER'S MEASUREMENT			
e. RECEIVER'S CORRECTION			

23a. MISCELLANEOUS

b. CONCISE NOTE ATTACHED ☐

c. UK REPORTABLE? ☐ YES ☐ NO

24. TOTAL GROSS WEIGHT

25. TOTAL VOLUME *(Waste Transfers Only)*

26. SHIPPER'S DATA

BACK REFERENCE NUMBER a.	LINE NO. b.	TYPE OF INV. CHANGE c.	IDENTIFICATION (ITEM/BATCH NAME) d.	NO. OF ITEMS e.	PROJECT NUMBER f.	MATERIAL TYPE g.	COMPT FACILITY CODE h.	OWNER CODE i.	KEY MEAS. POINT j.	MEAS. IDENT. k. 1 BASIS	2 OMP	3 METHOD	GROSS WEIGHT l.	NET WEIGHT m.	ELEMENT WEIGHT n.	ELEMENT LIMIT OF ERROR o.	WEIGHT % ISOTOPE p.	ISOTOPE WEIGHT q.	ISOTOPE LIMIT OF ERROR r.

↑ ↑ ↑ **26s. SHIPPER'S DATA** SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED

↓ ↓ ↓ **27s. RECEIVER'S DATA** SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED

27. RECEIVER'S DATA

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

DOE/NRC FORM 742 (8-2000)
MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150, Public Laws 83-703, 93-438, 95-91

U.S. DEPARTMENT OF ENERGY AND U.S. NUCLEAR REGULATORY COMMISSION

MATERIAL BALANCE REPORT

APPROVED BY OMB: NO. 3150-0004 EXPIRES: 08/31/2003

Estimated burden per response to comply with this mandatory collection request: 45 minutes. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0000), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection doesnot display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. NAME AND ADDRESS	2. LICENSE NUMBER(S)	3. REPORTING IDENTIFICATION SYMBOL (RIS)
	4. REPORT PERIOD (MM/DD/YYYY) FROM / TO	5. MATERIAL TYPE (Submit separate report for each type)
6a. PROCESS CODE / 6b. CORRECTION IDENTIFICATION		

SECTION A MATERIAL ACCOUNTABILITY

7. DOE/NRC 740M ATTACHED ☐ YES ☐ NO	A. ELEMENT WEIGHT	B. ISOTOPE WEIGHT
8. BEGINNING INVENTORY – U.S. GOVT-OWNED		
9. BEGINNING INVENTORY -- NOT U.S. GOVT-OWNED		
RECEIPTS		
11. PROCUREMENT FROM DOE RIS		
FROM:		
13. PROCUREMENT – FOR THE ACCOUNT OF DOE		
14. DOD RETURNS -- USE A		
15. DOD RETURNS -- USE B		
16. DOD RETURNS -- OTHER USES		
21. PRODUCTION		
22. FROM OTHER MATERIALS a. ICT		
b. ICT		
c. ICT		
30. RECEIPTS REPORTED TO DOE/NRC ON DOE/NRC 741 *(not listed elsewhere)*		
FROM: RIS		
34. RECEIPTS -- MISC		
37. PROCUREMENT BY OTHERS		
38. DONATED MATERIAL -- FROM U.S. GOVT TO OTHERS		
39. DONATED MATERIAL – FROM OTHERS TO U.S. GOVT		
40. TOTAL *(Lines 8-39)*		
REMOVALS		
41. EXPENDED IN SPACE PROGRAMS		
42. SALES TO U.S. GOVT RIS TO: RIS		
TO:		
43. SALES TO OTHERS FOR THE ACCOUNT OF U.S. GOVT RIS		
TO:		
44. DOD – USE A		
45. DOD – USE B		
46. DOD – OTHER USES		
47. EXPENDED IN U.S. GOVT TESTS		
48. ROUTINE TESTS		
49. SHIPPER -- RECEIVER DIFFERENCE		
51. SHIPMENTS REPORTED TO NRC/DOE ON DOE/NRC 741 *(not listed elsewhere)*		
TO: RIS		

NRC FORM 742 (8-2000) (PREVIOUS EDITIONS ARE OBSOLETE) PRINTED ON RECYCLED PAPER

SECTION A (Continued) MATERIAL ACCOUNTABILITY		A. ELEMENT WEIGHT	B. ISOTOPE WEIGHT
54. SHIPMENTS -- MISC			
58. DONATED MATERIAL – TO U.S. GOVT BY OTHERS			
59. DONATED MATERIAL -- TO OTHERS BY U.S. GOVT			
65. ROUNDING BIAS			
71. DEGRADATION TO OTHER MATERIALS	a. ICT		
	b. ICT		
72. DECAY			
73. FISSION AND TRANSMUTATION			
74. NORMAL OPERATIONAL LOSSES/MEASURED DISCARDS			
75. ACCIDENTAL LOSSES			
76. APPROVED WRITE-OFFS			
77. INVENTORY DIFFERENCE			
80. ENDING INVENTORY -- U.S. GOVT OWNED			
81. ENDING INVENTORY -- NOT U.S. GOVT OWNED			
82. TOTAL *(lines 41-81)*			
83. BIAS ADJUSTMENT			

SECTION B FOREIGN OBLIGATIONS		
1. COUNTRY OF OBLIGATION	2. ELEMENT WEIGHT	3. ISOTOPE WEIGHT
4. TOTAL WEIGHT		

SECTION C CERTIFICATION

To the best of my knowledge and belief, the information given above and in any attached schedules is true, complete, and correct.

SIGNATURE *(See instructions for provisions on confidentiality)*	TITLE	DATE

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL, AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

DOE/NRC FORM 742C
(12-2002)
MANDATORY DATA COLLECTION
AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150, Public Laws 83-703, 93-438, 95-91

U.S. DEPARTMENT OF ENERGY AND U.S. NUCLEAR REGULATORY COMMISSION

PHYSICAL INVENTORY LISTING

APPROVED BY OMB: NO. 3150-0058 **EXPIRES: 12/31/2003**

Estimated burden per response to comply with this mandatory collection request: 6 hours. This information is required by NRC to fulfill its safeguards responsibilities, bilateral agreements, and responsibilities as a participant in the US/IAEA Safeguards Agreement. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0058), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. NAME AND ADDRESS			2. DOE/NRC FORM 740M ATTACHED		3. REPORTING IDENTIFICATION SYMBOL (RIS)	
STREET ADDRESS			☐ YES ☐ NO			
CITY	STATE	ZIP CODE	4. INVENTORY	5. PROCESS CODE	6. CORRECTION I.D.	7. LICENSE NUMBER(S)

8. BATCH DATA

a. MATERIAL TYPE	b. COMP/FAC CODE	c. ELEMENT WEIGHT	d. ISOTOPE WEIGHT	e. DOE PROJECT NO.	f. SCRAP PROGRAM	g. WEIGHT PER-CENT ISOTOPE	h. OWNER CODE	i. SEQUENCE NUMBER	j. BATCH NAME	k NO. OF ITEMS	l. KEY MEASURE POINT	m. MEASUREMENT I.D.			n. ENTRY STATUS	o. MBA	p. SITE IDC
												MEAS. BASIS	OTHER MEAS. POINT	MEAS. METHOD			
9. TOTALS																	

To the best of my knowledge and belief, the information given above and in any attached schedules is true, complete, and correct.

10. SIGNATURE	11. TITLE	12. DATE

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

DOE F DP-749
(09-98) Previous editions are obsolete.
MANDATORY DATA COLLECTION AUTHORIZED BY Public Laws 83-703, 93-438

POSTED BY _____
JOB NAME _____
FIELD OFFICE _____

U.S. DEPARTMENT OF ENERGY
ADP TRANSCRIPTION SHEET
INTERNAL PROJECT TRANSFERS

(See instructions for provisions regarding confidentiality.)

OMB Control No.
1910-1800

PAGE _____ OF _____

DATE _____

HEADER CARDS:

SHIPPER RIS	RECEIVER RIS	INTERNAL TRANSACTION NUMBER	CO-PR. IND.	TRAN. CODE: PROC. CODE	TRAN. CODE: ACT. CODE	DATA CODE	NO. OF LINES		SEALED SOURCE SERIAL NUMBER	CONTRACT/IDENTIFICATION NUMBER		ACTION DATE: MO.	ACTION DATE: DAY	ACTION DATE: YR.	
1 2 3 4	5 6 7 8	9 10 11 12 13 14	15	16 17	18	19	20 21	22 23	24 25 26 27 28 29 30 31 32 33	34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69	70 71	72 73	74 75 76 77	78 79 80
					P	1									
					P	1									
					P	1									
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					P	1									
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					P	1									
					P	1									

DETAIL CARDS:

SHIPPER RIS	RECEIVER RIS	INTERNAL TRANSACTION NUMBER	CO-PR. IND.	TRAN. CODE: PROC. CODE	TRAN. CODE: ACT. CODE	DATA CODE	LINE NO.		FROM PROJECT NUMBER	FROM COMP. CODE	TO PROJECT NUMBER	TO COMP. CODE	MT	OWNER CODE	ELEMENT WEIGHT	WEIGHT % ISOTOPE	ISOTOPE WEIGHT
1 2 3 4	5 6 7 8	9 10 11 12 13 14	15	16 17	18	19	20	21	22 23 24 25 26 27 28 29 30 31	32 33 34 35	36 37 38 39 40 41 42 43 44 45	46 47 48 49	50 51	52	53 54 55 56 57 58 59 60 61 62 63	64 65 66 67 68 69	70 71 72 73 74 75 76 77 78 79 80
					P	2								G			
					P	2								G			
					P	2								G			
					P	2								G			
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					P	2								G			
					P	2								G			

18 U.S.C. SECTION 1001; ACT OF JUNE 25, 1948; 62 STAT. 749; MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CHAPTER XIX. DOCUMENT INDEX

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W

DOE/NNSA ORGANIZATIONS TO WHICH DOE M 474.1-2A IS APPLICABLE

Office of the Secretary
Office of the Chief Information Officer
Office of Civilian Radioactive Waste Management
Office of Counterintelligence
Departmental Representative to the Defense Nuclear Facilities Safety Board
Office of Energy Efficiency and Renewable Energy
Energy Information Administration
Office of Environment, Safety and Health
Office of Environmental Management
Office of Fossil Energy
Office of Independent Oversight and Performance Assurance
Office of the Inspector General
Office of Intelligence
National Nuclear Security Administration
Office of Nuclear Energy, Science and Technology
Office of Policy and International Affairs
Office of Science
Secretary of Energy Advisory Board
Office of Security
Office of Energy Assurance

DOE/NNSA ORGANIZATION TO WHICH DOE M 474.1-2A IS NOT APPLICABLE

Office of Congressional and Intergovernmental Affairs
Office of Economic Impact and Diversity
Office of Electric Transmission and Distribution
Office of General Counsel
Office of Hearings and Appeals
Office of Management, Budget and Evaluation and Chief Financial Officer
Office of Public Affairs
Office of Worker and Community Transition
Bonneville Power Administration
Southeastern Power Administration
Southwestern Power Administration
Western Area Power Administration

CONTRACTOR REQUIREMENTS DOCUMENT

DOE M 474.1-2A, *Nuclear Materials Management and Safeguards System Reporting and Data Submission*

Regardless of the performer of the work, the contractor is responsible for compliance with the requirements of this CRD. The contractor is responsible for flowing down the requirements of this CRD to subcontracts at any tier to the extent necessary to ensure the contractor's compliance with the requirements. In doing so, the contractor will not unnecessarily or imprudently flow down requirements to subcontracts. That is, the contractor will both ensure that it and its subcontractors comply with the requirements of this CRD; and only incur costs that would be incurred by a prudent person in the conduct of competitive business.

This CRD consists of the preceding Manual, DOE M 474.1-2A, *Manual for Nuclear Materials Management and Safeguards System Reporting and Data Submission*, dated 8-19-03, with the exception of the following paragraphs which only apply to DOE/NNSA elements.

Chapter II, paragraph 2
Chapter III, paragraph 15a
Chapter VI, paragraph 1a(2)
Chapter VI, paragraph 1c(2)(b)
Chapter VI, paragraph 1c(2)(c)
Chapter VI, paragraph 1c(2)(d)
Chapter VI, paragraph 1c(2)(e)
Chapter VI, paragraph 1c(2)(f)
Chapter VI, paragraph 1c(2)(g)
Chapter VI, paragraph 3a
Chapter VI, paragraph 3b
Chapter VI, paragraph 3c
Chapter VI, paragraph 3d
Chapter VI, paragraph 4c
Chapter VII, paragraph 2b

In addition to being listed above, the paragraphs that do not apply to contractors are also indicated where “see Attachment 2” is inserted following the paragraphs throughout the Manual.